

# FLIGHT

The  
AIRCRAFT ENGINEER  
AND AIRSHIPS

First Aeronautical Weekly in the World. Founded January, 1909

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice and Progress of Aerial Locomotion and Transport

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM

No. 1191. (Vol. XXIII. No. 43.)

OCTOBER 23, 1931

Weekly, Price 6d.  
Post free, 7½d. Abroad, 8d.

Editorial Offices: 36, GREAT QUEEN STREET, KINGSWAY W.C.2  
Telephone: (2 lines), Holborn 3211 and 1884.  
Telegrams: Truditur, Westcent, London.

Annual Subscription Rates, Post Free.

United Kingdom .. 33s. 0d. United States .. \$8.75.  
Other Countries .. 35s. 0d.\*

\* Foreign subscriptions must be remitted in British currency. (See last Editorial Page.)

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## EDITORIAL COMMENT

HERE will soon be fewer Short-Service officers in the Royal Air Force. The Air Ministry has announced that the conditions governing the grant of Short-Service commissions have been altered as from October 1, 1931. In future candidates must be unmarried and must be between the ages of 18 and 22. Previously the age limits were 18 and 25. These new conditions narrow the field. They permit of fewer applications. At the same time they offer somewhat better prospects to those who do receive Short-Service commissions. The reduction of the age limit permits all the S.S. officers to compete for permanent commissions. The new regulations do not suggest that the number of permanent commissions granted will be increased, but the percentage will be increased. In other words, there will be fewer officers transferred to the reserve and to the thorny path of civil life after five years in the service. Certainly the new regulations do not say specifically that the number of S.S. officers is to be reduced, but it is a fair deduction from these regulations to assume that they will be. It is a recognised method of checking recruiting to raise the standard, and that is practically what is being done in this case.

This innovation is all to the good. Of recent years the number of airmen pilots has been increasing, and now it has evidently reached the stage at which it has become possible to reduce the proportion of S.S. officers without reducing the number of pilots in the force. That number, of course, is always on the increase as new squadrons are formed. The process of expansion is slower than we should like to see, but it is controlled by financial and international considerations, for which the Air Ministry by itself is not responsible. Still, though the expansion is slow, it never stops. The increase in the number of squadrons must be accompanied by an increase in the number of higher posts, though this latter increase must be even more gradual. An addition of half-a-dozen more squadrons or flights may not call for the retention on the active list of another Air Vice-Marshal, but the tendency must be in that direction.

## DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list:—

- 1931
- Oct. 27. "By Air to Baghdad." Lecture by Mrs. Pender Chalmers at the Electrical Association for Women, 15, Savoy St., Strand, W.C.2 (3 p.m.).
- Oct. 28. Football. R.A.F. v. Hampshire, at Bournemouth.
- Oct. 29. "Accidents in Civil Aviation," Lecture by Capt. A. G. Lamplugh before R.Ae.S.
- Oct. 31. Rugby. Combined Services v. Bristol, at Bristol.
- Nov. 5. "Safety in Spinning," Lecture by H. B. Irving before R.Ae.S.
- Nov. 18. "Flying Boats in Empire Defence," Lecture by Wing-Com. R. M. Bayley, before R.U.S.I.
- Nov. 19. "Aircraft Vibration," Lecture by H. Constant before R.Ae.S.
- Dec. 3. "Wheel Brakes and Undercarriages," Lecture by S. Scott Hall before R.Ae.S.
- Dec. 10. "Air Flow—Demonstrations on the Screen by Means of Smoke," Lecture by W. S. Farren before R.Ae.S.
- Dec. 17. "Control Beyond the Stall," Lecture by Dr. G. V. Lachmann before R.Ae.S.
- 1932
- Jan. 14. "Interference," Lecture by E. Ower before R.Ae.S.
- Jan. 28. "Effect of Height on Range," Lecture by A. E. Woodward-Nutt and Fit.-Lt. A. F. C. Scroggs before R.Ae.S.
- Feb. 24. "A Flight to Abyssinia," Lecture by Sqdn.-Ldr. J. L. Vachell, before R.U.S.I.
- Mar. 10. "Results with the New Wind Tunnel at N.P.L.," Lecture by E. F. Relf before R.Ae.S.
- Mar. 16. "Development of Naval Air Work," Lecture by Commodore N. F. Laurence, before R.U.S.I.
- Mar. 23. "High-Speed Flying," Lecture by Sqdn.-Ldr. A. H. Orlebar, before R.U.S.I.
- Apr. 13. "The North-West Frontier of India," Lecture by Maj.-Gen. S. F. Muspratt, before R.U.S.I.

The governing principle in laying down the number of permanent commissions in the Royal Air Force is that every cadet who enters Cranwell College, and every University candidate who receives a commission, must have a reasonable prospect of making the Royal Air Force his life's work, and finding in that service a career which will satisfy his ambition. A certain scale of wastage is allowed. Not every cadet will reach air rank. Unfortunately, allowance has to be made for peace-time casualties. Ordinary sickness and non-flying accidents will cut short the careers in the service of another proportion. Yet another proportion will voluntarily leave the service for civil careers. Want of ability will prevent some others from receiving promotion. The residue should be able to count on wearing broad blue stripes on their cuffs before they retire.

Any step which deprived an officer of this residue of the prospects which had been held out to him would be an injustice. It is right to grant permanent commissions to particularly brilliant men among the S.S. officers and among the airmen pilots, but these grants must never be on a scale which would cause an injustice to the Cranwell and University officers. The ranks of ordinary pilots must be brought up to the requisite numbers by some other means. The grant of Short-Service commissions was the first expedient tried. The candidates were frankly warned that they must not expect to stay in the service for more than five years. Later on, Medium-Service commissions were added, which gave employment for 10 years. From the point of view of the R.A.F. the S.S. commissions proved satisfactory. They were instituted at a time when employment was so very hard to obtain that many a young man was grateful for a job which provided him with bread and butter for five years. Sufficient for the day! The problem of finding a permanent post was at least postponed.

Though this system worked for a while, and though later on the energies of the employment board did a good deal to mitigate the hardships of "losing one's job" (which is, in plain language, what actually happened), the whole principle of turning a man adrift at 23 to 30 years of age never seemed to us one which could be commended. One could not conscientiously recommend a young friend of one's own to apply for a S.S. commission, unless, indeed, he had private means and just wanted to learn to fly and to put in five years of pleasant work. The system might almost have been described as exploiting the young man who could not find a job. All that could be said in its favour, from the viewpoint of the employee, was that the authorities were quite frank in telling him before he joined that he must not expect anything after five years. He accepted the terms with his eyes open.

We are glad to see this system gradually disappearing. It may be a good thing to preserve it on a very limited scale. A few cases will be found every year where five years in the service will be an advantage for the civil career which the men in question wish to follow. As regular airways expand, the companies will look to the S.S. officers who have just finished their five years in the service for their regular staff

of pilots. At present this demand is infinitesimal, but it will gradually grow. At the same time, of those who henceforth accept S.S. commissions, a larger percentage will be granted permanent commissions.

Meantime, we welcome the increase in the number of airmen pilots in the Royal Air Force. We have for long believed that the use of airmen pilots was the correct way of solving the difficulty, which it was attempted to solve by instituting S.S. commissions. We have never been able to see why the pilot of a service aeroplane should usually hold a commission. The merit shown by the airmen pilots has proved that our view was justified.

❖      ❖      ❖

To read the report of the Department of Civil Aviation ten months after the end of the year with which it deals is rather like a vision of ghosts. Much of the report is concerned with expectations for the future. New types of aircraft are expected; new airways, it is hoped, will soon be inaugurated; new devices are being sought which will increase the

**Civil  
Flying in  
1930**

safety and comfort of passengers and will render the services more independent of weather and other obstacles. The reader has to throw himself into the mind of the writer and share his hopes and expectations. Then, inevitably, his mind returns to the present, and he compiles a balance sheet of those hopes which have materialised against those which have come to nought. The result is rather unsatisfying. The hopes which have been fulfilled are now a matter of history. Their fulfilment has been recorded in the pages of *FLIGHT*, and possibly elsewhere, and the subjects have ceased to be what Fleet Street calls "live news." To read of the disappointments is—well, disappointing. We might by now have had an airway stretching from Croydon to Capetown. The deities of the air have ruled otherwise. In 1930 plans were being formulated for a weekly service between England and Australia. They remain a pious hope for the future. Will India, we wonder, find money next year to carry the airway from Karachi to Calcutta, and if the money is there, will Mr. Ghandi, or whoever by that time claims to wear the Ghandi home-spun *chaddar*, permit the funds to be so used. That those responsible for the welfare (or otherwise) of India will ever permit a company from outside India to institute such a service is a proposition which we are given to understand has already been answered in the negative. But perhaps in time the Governments of various parts of the British Empire will have changed their ways and decided to govern for the benefit of those whom they rule. When the Indian airway has become an accomplished fact, we shall wait for the next Civil Aviation Report to tell us that this is likely to happen.

All this notwithstanding, the said report is a valuable document. At the moment of its publication it appears stale and unprofitable. Put it in your library for a few years, and it gradually becomes a work of reference, with which you are unable to dispense.



# Two New Military Aircraft

(Concluded from page 1036)

**T**HE *Atlas II*, as before, is meant to be used as a two-seater fighter, as a day-bomber or as an Army co-operation aircraft, having such duties as photography, wireless and the picking up of messages. Two-seater training of the advanced type is yet another of its uses, while when fitted with floats it makes an admirable seaplane. In this connection it will be remembered that an *Atlas* with stainless steel floats was used extensively as a tender to the High-Speed flight at Calshot during their training and during the actual race for the Schneider Trophy.

Among the chief improvements incorporated in the *Atlas II* are extra streamlining of strut ends, wing roots and undercarriage units, giving the whole aircraft a much cleaner appearance and consequently enhanced performance. The electrical generators, both the D.P. wireless supply one and the direct-current lighting and heating one, are engine-driven by means of flexible shafting and are housed in the fuselage, thus being out of the slipstream and causing no interference. The fairing panels outside these generators—they are on either side of the first fuselage bay—have small louvres in them to provide ventilation and cooling air.

The navigation lights have now been redesigned so that they are sunk into the wing-tips and the top of the rudder and do not project. The pilot's cockpit has been altered somewhat, thus enabling the pilot to get in and out very much more easily.

The control surfaces and

## DIMENSIONS OF THE ATLAS II

### DIMENSIONS.

|                        |    |                           |
|------------------------|----|---------------------------|
| Overall length         | .. | 29 ft. 6.5 in. (9.09 m.). |
| Height                 | .. | 10 ft. 7 in. (3.22 m.).   |
| Track of undercarriage | .. | 7 ft. 4 in. (2.22 m.).    |
| Fuel                   | .. | 95 gall. (431.86 l.).     |
| Oil                    | .. | 7 gall. (31.82 l.).       |

### MAIN PLANES.

|                            |    |                                      |
|----------------------------|----|--------------------------------------|
| Span Top                   | .. | 40 ft. 2 in. (12.22 m.).             |
| Span Bottom                | .. | 30 ft. 10.3 in. (9.41 m.).           |
| Chord top                  | .. | 6 ft. 7 in. (2.00 m.).               |
| Chord bottom               | .. | 5 ft. 7 in. (1.70 m.).               |
| Dihedral top               | .. | 2 deg.                               |
| Dihedral bottom            | .. | 3.5 deg.                             |
| Incidence top              | .. | 5 deg. 27'.                          |
| Incidence bottom           | .. | 5 deg. 19'.                          |
| Sweepback (top)            | .. | 5 deg.                               |
| Sweepback (bottom)         | .. | 5 deg.                               |
| Stagger                    | .. | 1 ft. 7.5 in. (0.49 m.).             |
| Total area (less ailerons) | .. | 335 sq. ft. (34.12 m <sup>2</sup> ). |

### TAIL PLANE.

|                             |    |                                      |
|-----------------------------|----|--------------------------------------|
| Span                        | .. | 13 ft. 4 in. (4.06 m.).              |
| Chord (with elevator)       | .. | 4 ft. 4.5 in. (1.33 m.).             |
| Total area (less elevators) | .. | 31.8 sq. ft. (2.95 m <sup>2</sup> ). |
| Range of Incidence          | .. | 5 deg.                               |

### AILERONS.

|            |    |                                      |
|------------|----|--------------------------------------|
| Span upper | .. | 12 ft. 5.7 in. (3.80 m.).            |
| Chord      | .. | 1 ft. 7 in. (0.47 m.).               |
| Span lower | .. | 8 ft. 3 in. (2.51 m.).               |
| Chord      | .. | 1 ft. 5.7 in. (0.45 m.).             |
| Total Area | .. | 57.7 sq. ft. (5.36 m <sup>2</sup> ). |

### ELEVATORS.

|            |    |                                      |
|------------|----|--------------------------------------|
| Span       | .. | 6 ft. 2.4 in. (1.89 m.).             |
| Chord      | .. | 1 ft. 3.7 in. (0.40 m.).             |
| Total area | .. | 17.5 sq. ft. (1.62 m <sup>2</sup> ). |

### RUDDER.

|      |    |                                      |
|------|----|--------------------------------------|
| Area | .. | 14.9 sq. ft. (1.38 m <sup>2</sup> ). |
|------|----|--------------------------------------|

### FIN.

|      |    |                                     |
|------|----|-------------------------------------|
| Area | .. | 8.5 sq. ft. (0.79 m <sup>2</sup> ). |
|------|----|-------------------------------------|

their operation are now much more efficient, and the use of ball bearings throughout eliminates frictional losses. The ailerons are of a narrow chord, and are Frise balanced as well as being statically balanced, thus making them very light in operation. The top aileron has a movable portion built into the trailing edge in such a manner that this may be used as a fine adjustment for final balancing. A point to which particular attention has been paid is to ensure that all the controls are of the same weight of operation over a wide speed range.

The pilot's cockpit has been improved, and the general arrangement is such that all instruments and levers are in the most convenient position. The seat is made adjustable for height by the operation of a single lever at its side. A prone bombing position is provided for the after gunner with a camera mounting abaft it.

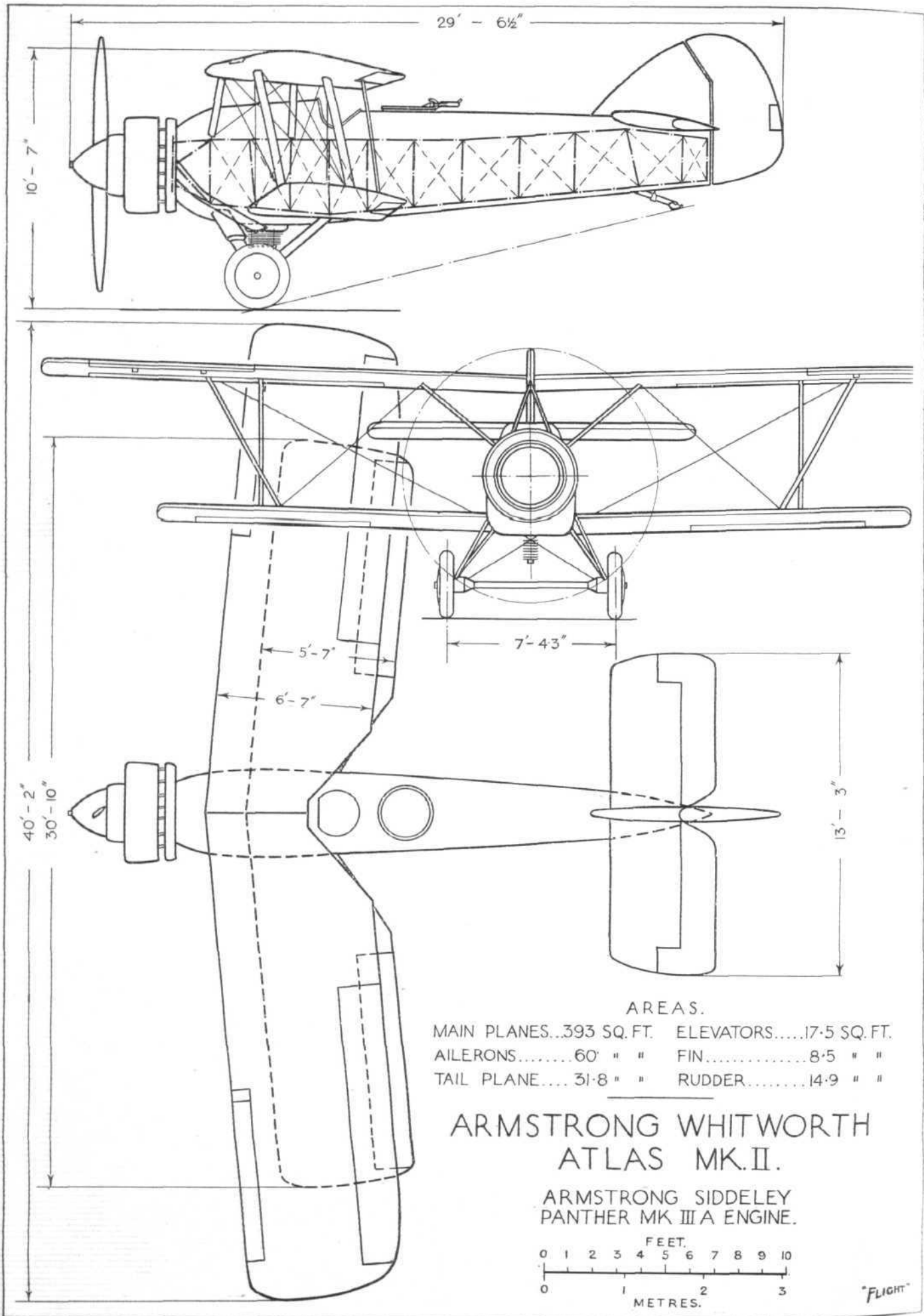
The undercarriage springing has also been improved greatly. This utilises oleo-cum-rubber compression legs of a new type, wherein the rubber is in the form of long cylinders sliding in metal casings. Wheel brakes can be fitted if desired, but owing to the low landing speed are not used as standard.

The power plant installation has been simplified, and the engine cowling can now be detached very readily. A Townsend ring is fitted as standard and is mounted on flexible brackets, thus entirely overcoming any trouble there was in the past with the ring cracking owing to the vibration. The fuel feed is by gravity from all

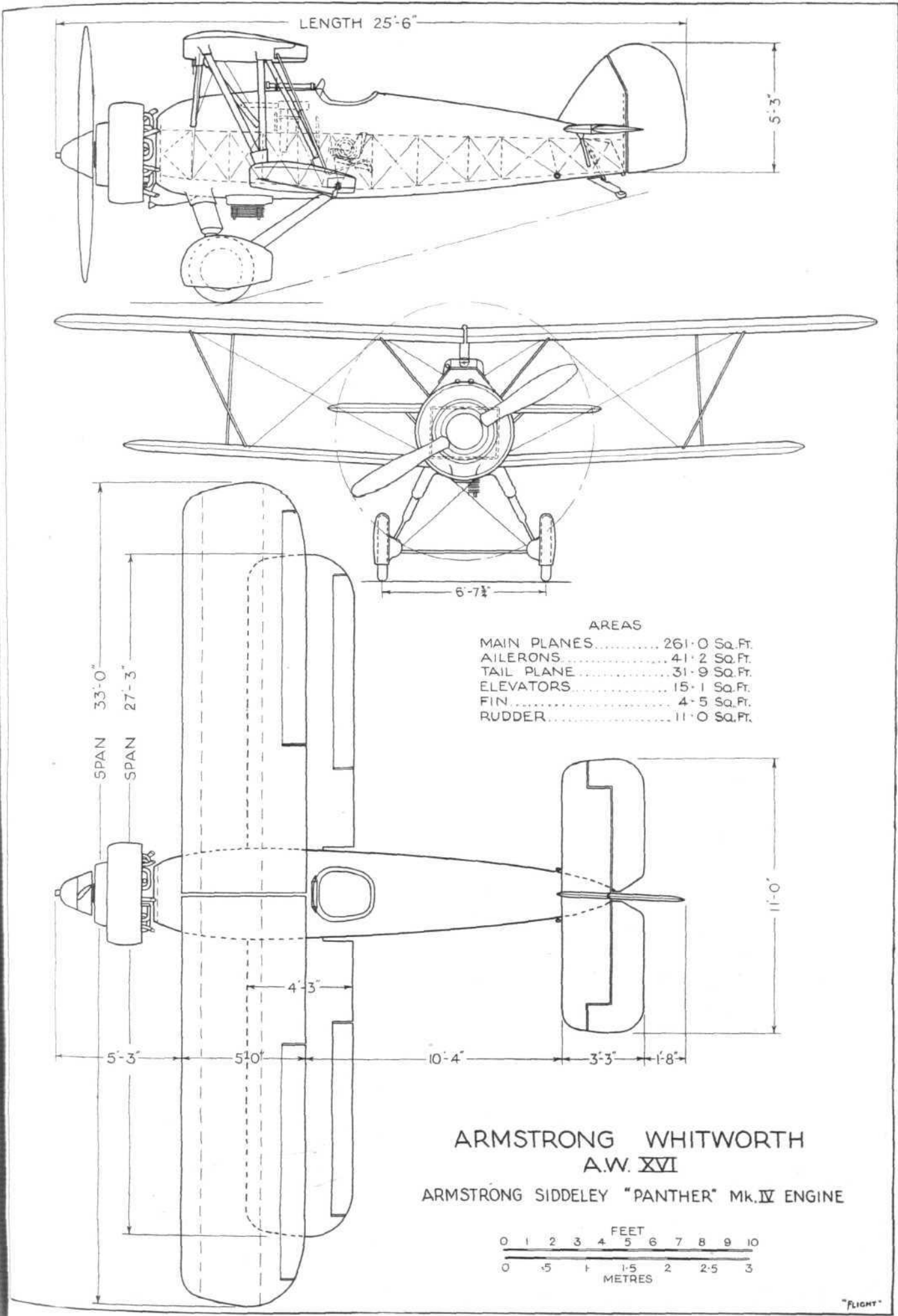


**THE SINGLE SEATER:** The Armstrong-Whitworth A.W.XVI (Armstrong-Siddeley Jaguar Major). This three-quarter rear view shows off the clean lines of this fast machine to good advantage. (FLIGHT Photo.)

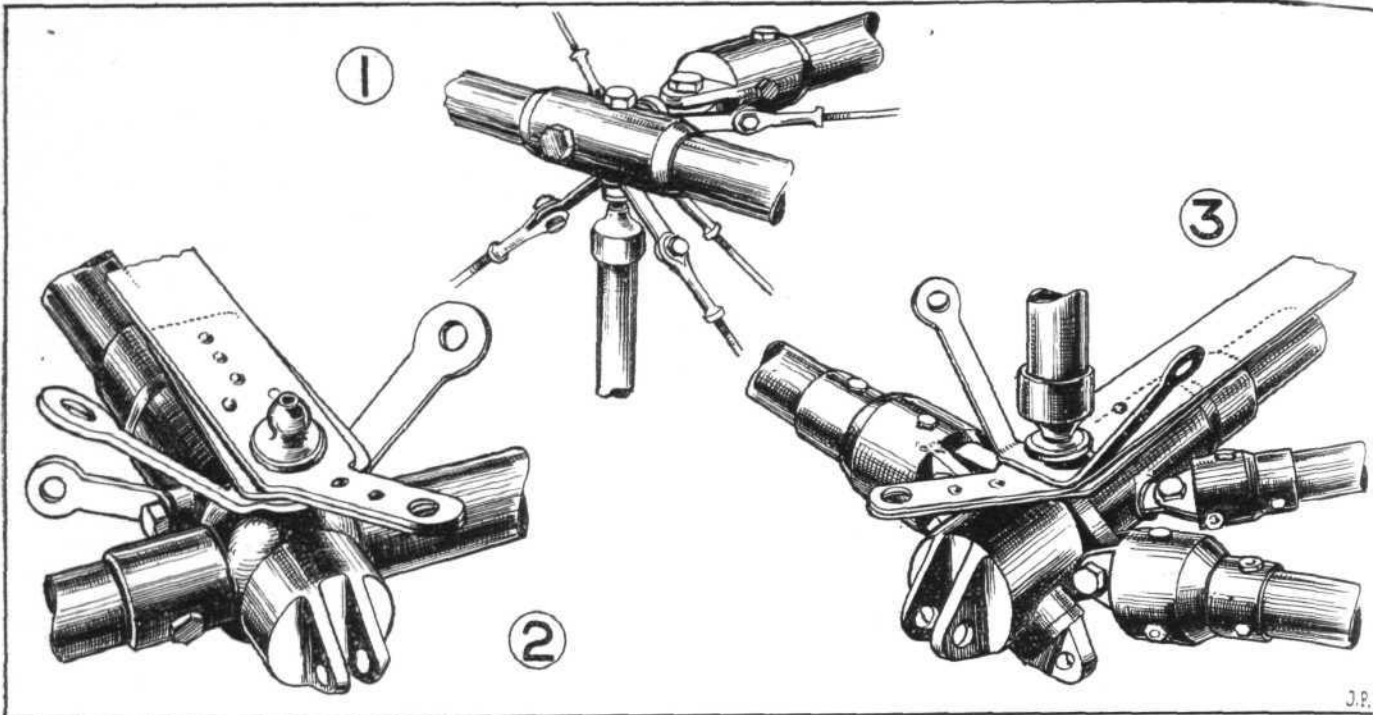




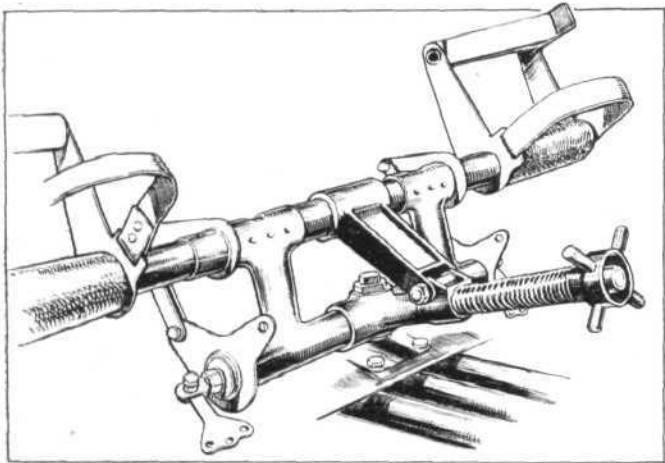
The Armstrong-Whitworth Atlas Mark II with Armstrong-Siddeley Jaguar Major or Panther engine.



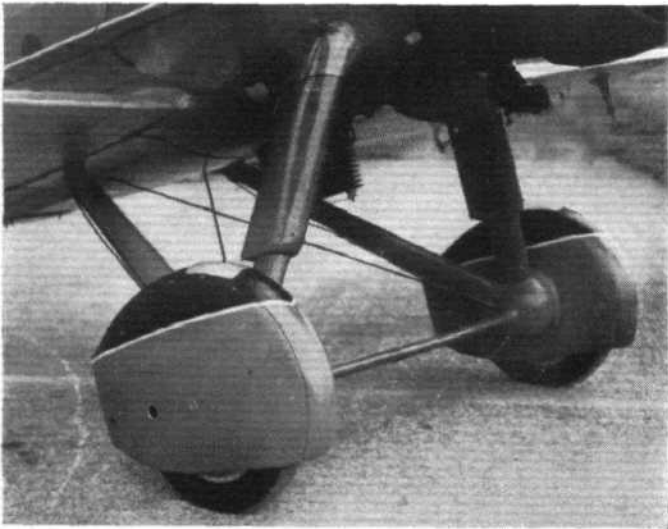
The Armstrong-Whitworth, A.W.XVI with Armstrong-Siddeley Jaguar Major or Panther engine.



**STEEL CONSTRUCTION:** Sketches 1, 2 and 3 are typical examples of Armstrong-Whitworth steel tube construction. They show, in particular, the ball and cup method of attaching the vertical fuselage struts. (FLIGHT Sketches.)



**FOR THE PILOT'S COMFORT:** The Armstrong-Whitworth A.W.XVI has the above method of adjusting the pilot's rudder bar. (FLIGHT Sketch.)



**A CLEAN UNDERCARRIAGE:** Both the Armstrong-Whitworth Atlas II and A.W.XVI have well faired undercarriages with "spats" over the wheels. Our sketch shows what an admirable result has been achieved. (FLIGHT Sketches.)

**PERFORMANCE OF THE MARK II ATLAS**  
(With Panther Engine)

|               |    |    |    |                   |
|---------------|----|----|----|-------------------|
| Petrol        | .. | .. | .. | 95 gall. (432 l.) |
| Oil           | .. | .. | .. | 8 gall. (36½ l.)  |
| Military load | .. | .. | .. | 880 lb. (400 kg.) |

|                           | Panther Engine<br>with Geared Fan |          | Panther<br>Super-<br>charged |
|---------------------------|-----------------------------------|----------|------------------------------|
|                           | Landplane                         | Seaplane | Landplane                    |
| Approx. total weight, lb. | 4,600                             | 5,000    | 4,625                        |
| Speed at—                 |                                   |          |                              |
| Ground level, m.p.h...    | (154.5)                           | (146.5)  | —                            |
| 5,000 ft., ..             | 153.5                             | 145.5    | —                            |
| 10,000 " ..               | 149.5                             | 141.5    | (167)                        |
| 15,000 " ..               | 144.5                             | —        | 164.5                        |
| 20,000 " ..               | —                                 | —        | 159                          |
| Time to—                  |                                   |          |                              |
| 5,000 ft., min. ..        | 4.0                               | 5.0      | 4.5                          |
| 10,000 " ..               | 9.5                               | 12.5     | 9.5                          |
| 15,000 " ..               | 19.5                              | —        | 15.5                         |
| Absolute ceiling, ft. ..  | 19,500                            | 16,500   | 24,500                       |
| Service ceiling, ft. ..   | 18,200                            | 15,200   | 23,500                       |
| Approx. total weight, kg. | 2 090                             | 2 270    | 2 100                        |
| Speed at—                 |                                   |          |                              |
| Ground level, km.p.h.     | (249)                             | (236)    | —                            |
| 1,000 m., ..              | 248                               | 236      | —                            |
| 3,000 " ..                | 241                               | 228      | (269)                        |
| 5,000 " ..                | 230                               | —        | 262                          |
| Time to—                  |                                   |          |                              |
| 1,000 m., min. ..         | 2.5                               | 3.25     | 3.0                          |
| 3,000 " ..                | 9.25                              | 12.25    | 9.25                         |
| 5,000 " ..                | —                                 | —        | 17.0                         |
| Absolute ceiling, m. ..   | 5 940                             | 5 030    | 7 470                        |
| Service ceiling, m. ..    | 5 540                             | 4 630    | 7 170                        |

N.B.—The figures in parentheses indicate that the engine throttled.

tanks. There is a main tank of 75 gall. in the first bay of the fuselage and another one of 20 gall. in one upper wing root. Another similar tank may be fitted in the opposite root if required. The engine fitted is the Panther, and may be geared and/or supercharged, giving 500/525 b.h.p.

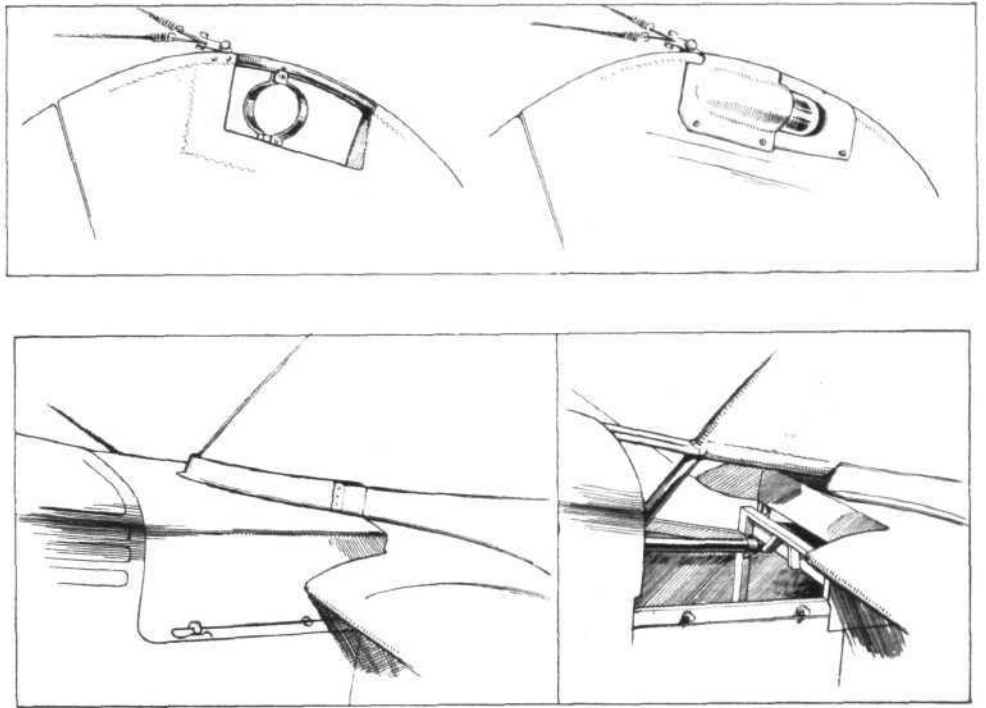
The construction throughout is, of course, of the well-known Armstrong-Whitworth steel type. The wings follow standard practice, with built-up strip steel spars and ribs. The drag bracing is a combination of tie-rods and steel tubes. The wing roots have extra tube bracing, which is detachable, as it is here that the wing fuel tanks are fitted. A diagonal strut may be withdrawn to put the tank in place and then replaced up into a curved groove.

Handley Page slots are fitted to the top planes in a very neat manner with only two hinge points, both of which are well faired and offer a minimum of drag. The auxiliary surfaces are built up to the requisite section, and being fairly deep can withstand any tendency to torsional displacement.

The ailerons have steel tubular spars with ribs of drawn section strip steel. The trailing edge of the upper aileron has a movable flap on it, which, as already described, allows for fine balancing.

The rudder is of similar construction, with a plain steel tubular post and drawn ribs. The movable flap fitted to the top aileron is similarly used on the rudder.

The tailplane is a little unusual, and is to be distinguished for its exceptional rigidity. The spar is somewhat similar to that used in the main planes except that the web is shallower. This same spar section is used for the greater part of the drag bracing in the form of a warren girder between the spars, thus, by virtue of its depth, providing insurance against torsional displacement.



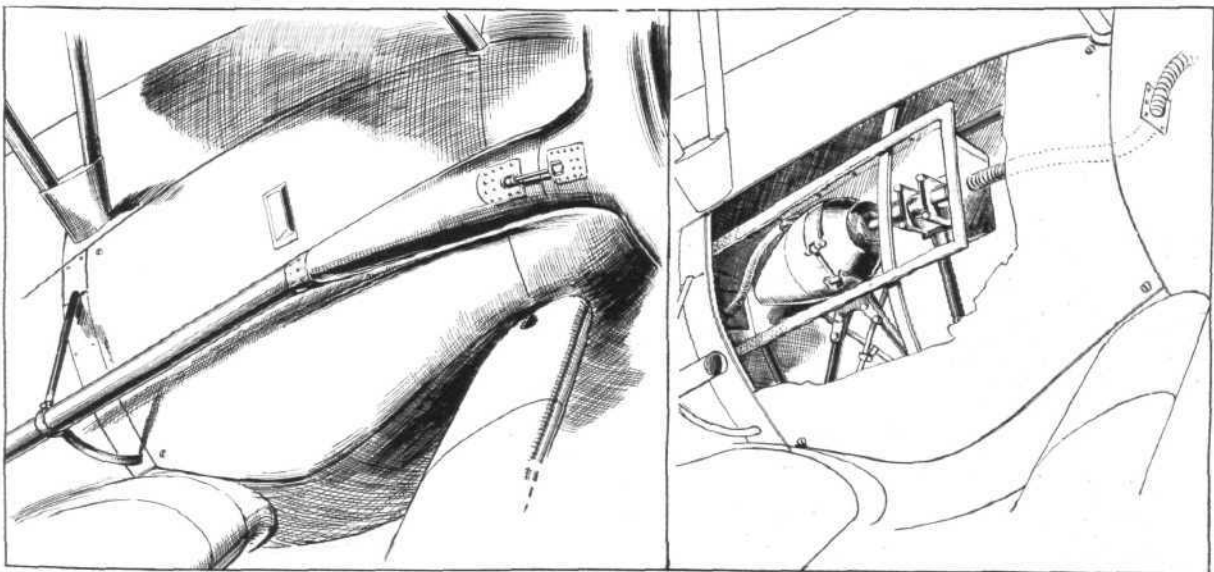
**DETAILS THAT COUNT:** Above, our artist shows how the tail lamp has been fitted snugly into the rudder, while below he depicts the method by which the tail plane has been faired to the fuselage of both the *Atlas II* and *A.W.XVI*.

(FLIGHT Sketches.)

The elevators have spars of round section built up from strip steel. They have diagonal horn balances and are statically balanced by the inclusion of lead ballast in these horns.

The fuselage of the *Atlas II* follows standard Armstrong-Whitworth practice, with steel tube longerons, vertical ball-ended struts and tie-rod bracing.

In general lay-out it is obvious that a great deal of thought has been given to making this machine far cleaner than its predecessors, with far better performance as a result; being of steel it should be unaffected by climatic conditions and therefore suitable for use abroad.



**OUT OF THE SLIPSTREAM:** The electrical generators on these new Armstrong-Whitworth aircraft have been placed inside the fuselage fairing. Our sketch, here shows the generator for lighting and heating on the right-hand side of the machines. The view on the left illustrates the clean result when the fairing panel is over the generator and shows the two ventilators for keeping it cool. (FLIGHT Sketches.)





# AN INTERESTING LIGHT AIRCRAFT

**A**N aircraft which, although of foreign design and make, has already sold in quite considerable numbers over here is the Klemm. We have described this machine from time to time and have illustrated it with many and varied engines fitted to it. One of the latest forms is that with the Hirth engine. We recently took the opportunity of trying this machine for ourselves, and found it to be extremely fascinating. The motor could hardly be smoother, and is apparently exceptionally economical, for Mr. Rogers, who demonstrates Klemm aeroplanes for S. T. Lea, Ltd., of 141, New Bond Street, W.1, tells us that the fuel consumption is only three gallons per hour, while the oil consumption is at present almost negligible. After trying this machine we cannot help feeling that there is a very definite future for machines of similar type built in this country. Possibly the plans which have been laid for a company to manufacture Klemms themselves, or else the new de Havilland "Swallow" will meet the demand, for a demand there certainly is.

The Klemm is the type of aircraft which immediately inspires anyone with confidence, and we imagine that for club flying it will be hard to beat. For such a purpose several features will, of course, have to be altered. For example, the undercarriage looks somewhat too light to stand up to the hard wear of teaching people to fly, but the flying qualities of the machine itself cannot but inspire confidence in any beginner, particularly if those beginners are, as is already the case at many places, glider pilots who have now turned their attention to power-driven aircraft. The Klemm is very like a glider to fly, and, due to its efficiency, has an exceptionally flat gliding angle. It is also almost impossible to stall in a dangerous manner, and even with the stick pulled right back, does nothing more

ailerons were either not connected up or else connected up the wrong way, we forget for the moment exactly which it was. However, the machine crashed from that height and completely demolished both wings and the undercarriage, and, of course, the engine and front part of the fuselage, but the occupants were not hurt at all! Such a crash is one which, of course, could have been avoided, for most pilots invariably try their controls before taking off, but on this occasion the pilot in question appears to have forgotten this simple precaution.

There is a further interesting development in connection with the Klemm, and that is a machine even lighter than the model which is fitted with the 50-h.p. Salmson engine. This was, we understand, built in the first place as a machine which Herr Klemm's son, age 9, could fly round the aerodrome with safety. It is a similar type of aircraft, but has a wing span of some 54 ft., resulting in a low landing speed of about 8 m.p.h. and a cruising speed of about 35 m.p.h. The engine is at present a small 2 cylinder of the motor-cycle type. The development which is expected is that an aircraft of this type will have some form of retracting gear for the propeller so that glider pilots may rise under their own power to suitable cumulus clouds, then retract their propeller and proceed to soar, and if, as it is hoped, this machine sells at considerably less than £200 there is no doubt that its appeal will be very strong indeed to glider pilots and clubs and those who want something slow, safe and easy to fly.

In conclusion, there is one fallacy we should like to point out, and that is that Klemms are invariably slow. This has come about from the fact that the Klemm was first marketed with the little 50-h.p. Salmson engine. Naturally this model is slow, but its lack of speed also makes it extremely safe, and therefore has its appeal to a large



**IN HER NATIVE HOME:** The Klemm Two-seater taken at Boblingen where Herr Klemm has his factory. The neat engine cowling of this model is made possible by the small overall dimensions of the Hirth motor, while it being inverted gives the pilot an excellent view. It has 4 cylinders and gives 80 h.p.

than sink to an even keel and picks up speed immediately. It is naturally very different from such machines as the conventional single-bay biplane, and has, therefore, to be flown differently, but once those small differences have been mastered, it is one of the simplest and least tiring machines of any. Another point in its favour is that the boxed plywood low cantilever wing is an excellent safety factor in a crash. One has only to look at that accident at Croydon recently, when a Klemm of the B.A.T. Co., Ltd., went up with two Press photographers and when some 60 ft. off the ground the pilot discovered that the

number of people. Latterly, however, engines of various powers have been fitted, and the latest is one with a Gipsy III engine and somewhat clipped wings, resulting in cruising speed of somewhere about 112 m.p.h. There are also rumours of a mail carrier which has the 200-h.p. inverted Argus engine, with a cruising speed of over 130 m.p.h. The existing three-seater Klemm with the inverted Hermes engine is already being used in Africa for mail carrying purposes, and seems extremely efficient for the job, having a fuel capacity of over 40 gall. and a payload of over 1,000 lb.

## Lloyd's Register of Shipping and Aircraft

THE second year of the Society's participation in the inspection of civil aircraft ended in June last, and was marked by a great increase in the amount of work undertaken. During the last twelve months of this period the number of aircraft on the Society's register has been more than doubled; the increase of work undertaken has necessitated the appointment of a further aircraft surveyor, and Mr. G. H. M. Miles, late Technical Assistant to the Managing Director of Imperial Airways, Ltd., has now joined the senior aircraft surveyor's staff. Representations have been made to the Society that difficulty is being experienced by owners of aircraft in procuring the renewal of Air Ministry certificates of airworthiness for

British aircraft outside this country. In order to meet this need, the Committee have decided to appoint non-exclusive aircraft surveyors abroad. The first of these appointments is that of Non-Exclusive Surveyor for Aircraft in Greece of Mr. H. Bentley, Manager of the Blackburn Aeroplane & Motor Co., Ltd., at the Greek Government aircraft factory, Athens. Further, such surveyors will be appointed as and when possible. The Aviation Advisory Committee has been strengthened by the election thereto of Air Marshal Sir John F. A. Higgins, of Sir W. G. Armstrong Whitworth Aircraft, Ltd., Sir Arthur Worley, of the British Aviation Insurance Co., Ltd., Mr. Brian Lewis, of Brian Lewis and Co., Ltd., and Mr. W. S. Stephenson, of National Flying Services, Ltd.



# THE BRAUN RELATIVE ALTITUDE METER

**I**NVENTED by a young Austrian engineer, Hans von Braun, this new instrument was given its preliminary tests recently over the Tempelhof Feld, Berlin, in one of the machines belonging to the Deutsche Luft Hansa.

Its origin, like many great inventions before, was largely the result of chance, Herr Braun happening one day to come across an article in a journal describing the work of the French Professor Jolly on the mutual attraction of bodies.

It will be realised that the practical difficulties to be overcome were rather formidable, as the gradual reduction in weight as a body is removed from the surface of the earth is so very small as to require extremely sensitive apparatus to determine it. Not only so, but the instrument, which Herr Braun has termed a "relative altimeter," but which we prefer to call a "relative" altitude meter, is mainly intended for use fairly close to the ground, *i.e.*, for giving accurate indications when the ordinary barograph, set to indicate altitude above sea level, fails to give the information desired.

The Braun relative altitude meter makes use of the earth's attraction of bodies, which attraction varies, of course, with the distance from the earth's surface. In the work of developing the instrument to the point where it is regarded as a practical piece of equipment, Herr Braun has been assisted by Diplom-Ingenieur Erwin Stern, and several years have been spent in experimentation and development work. The experimental model recently tested was found to be very sensitive, and gave readings on the dial when the aircraft passed through bumps. [It would be interesting to know whether these readings were due to the sudden change in distance from the earth's surface, or whether they were caused by the acceleration and deceleration of the machine.—Ed.] What the Braun instrument indicates is altitude above the surface immediately below, and not height above sea level. Thus, in foggy weather the pilot is warned of an approach to hilly or mountainous country, a warning which the ordinary altimeter cannot give.

The principle of the Braun relative altitude meter may best be followed by a reference to the accompanying diagram. The instrument consists of a cross pendulum, which is driven at a speed of about 1,200 r.p.m. by an

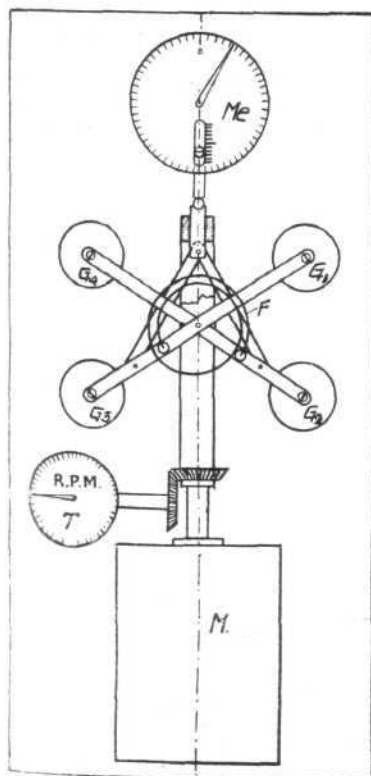
electric motor. The pendulum arms carry at their ends weights which are acted upon by gravity and by centrifugal force. A spiral spring is connected to the pendulum arms in such a manner that when the arms close up or spread out the spring is contracted or expanded.

Highly geared to the pendulum arms is the pointer of the indicator dial. This dial is divided into 100 divisions for each 5-m. (16-ft.) difference in altitude. This part of the dial is to be regarded as the "vernier" reading. A vertical scale indicates simultaneously the altitude in 500-m. (1,600-ft.) divisions.

The spring tension and the speed of revolution of the cross pendulum with its weights remaining constant, the only variable is the weight of the weights G1, G2, G3 and G4. This is influenced by altitude, and the very minute increase or decrease in weight causes the pendulum cross arms to contract or expand, this very slight change being communicated, magnified manifold, to the pointer of the dial.

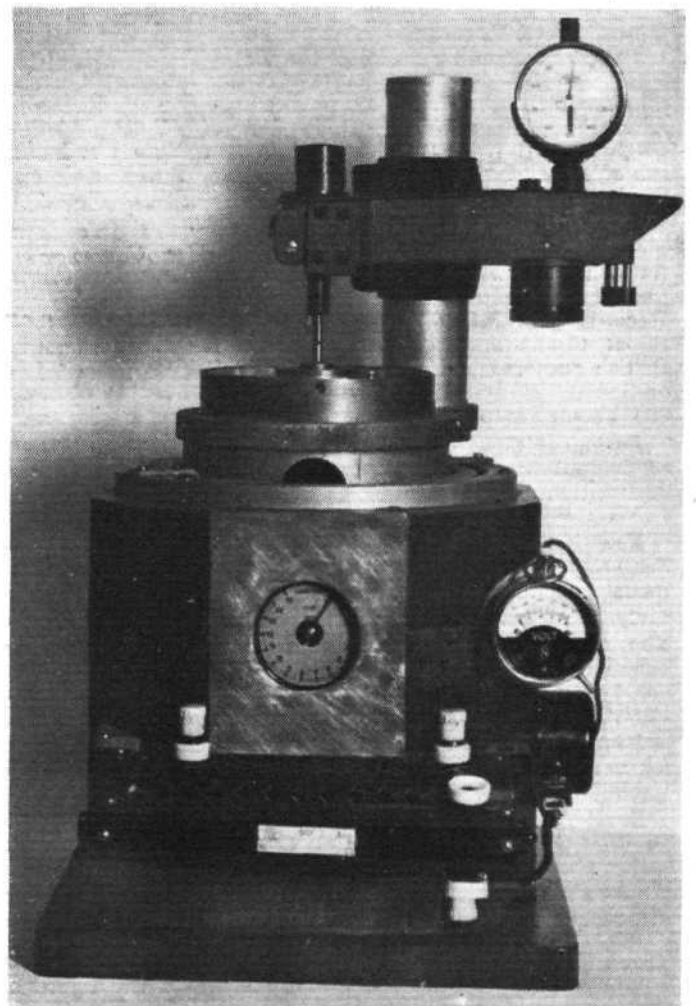
The principle is simple, but its carrying into effect must have presented many problems. For example, unless the speed of rotation of the pendulum arms is absolutely accurate and constant, the readings must become inaccurate. Or, if the spring tension varies due to expansion or contraction caused by a difference in temperature, the readings would, presumably, also be upset.

In the experimental model the drive is by an electric motor driven by a 6-volt accumulator. A variable resistance is incorporated so as to enable the speed of the motor to be regulated to a nicety. The weight of the experimental model is stated to be approximately 8 kg. (17 lb.), including accumulator, but it is expected to reduce this weight to some 3 kg. (7 lb.) in the production model.



**DIAGRAMMATIC REPRESENTATION:** Me is the indicator dial. G1, G2, G3, and G4 the weights carried on arms of cross pendulum. F is the spiral spring and T the revs. indicator. The electric motor is shown at M.

**THE BRAUN RELATIVE ALTITUDE METER:** Front view of the actual experimental model.



# THE ROYAL AERO CLUB OF THE UNITED KINGDOM

## OFFICIAL NOTICES TO MEMBERS

REPORT of meeting of the Committee of the Royal Aero Club held at 119, Piccadilly, W.1, on Wednesday, October 14, 1931, at 5 p.m.

**Present:**—Lieut.-Col. Sir Francis McClean, A.F.C., in the Chair; Commander James Bird; Captain H. S. Broad; Lieut.-Col. M. O. Darby; Major C. J. W. Darwin, D.S.O.; Major A. R. Goodfellow; Captain A. G. Lamplugh; John Lord; F. Handley Page, C.B.E.; Major H. A. Petre, D.S.O., M.C. **In attendance:**—H. E. Perrin, Secretary; B. Stevenson, House Secretary.

**Election of Members:**—Twenty-four new Members were elected, as follows:—

**List of Members.**—Major Owen K. Backler; John de Caynath Ballardie; Colonel Robert Smith-Barry, A.F.C.; Captain John Kenneth Campbell, R.A.; Frederick Albert Davies; John Henry Davis; Squadron Leader Ernest Augustus Fawcus; Flight-Lieut. Maxwell Hutcheon Findlay; John Fox; Frederick Grainger; John Howard Marshall; Charles Owen Powis; Coryton Hugh Roberts; Owen George Endicott Roberts; Philip Leverett Saltonstall; John Lister Shand; Courtenay Alexander Rives Shillington; Frank Spencer Spriggs; Flight-Lieut. Howard William Taylor; George Henry Wadsworth; Lord Waleran; Robert MacNeil Buchanan; Henry Richards; John Stark.

**Aviators' Certificates:**—Aviators' Certificates Nos. 9927 to 10151 were granted.

**Gliding Certificates:**—Gliding Certificates Nos. 167 to 198 were granted.

### World Speed Records:—

**100 Kilometres in a Closed Circuit:**—The following performance was approved as a National Record for submission to the F.A.I. for acceptance as a World's Record.—Aircraft: Supermarine Rolls Royce S.6B. Pilot: Flight-Lieut. J. N. Boothman, A.F.C.; nationality, British subject. Date: September 13, 1931. Race: Spithead, England. Performance: Speed over a closed circuit of 100 kilometres, 551.8 kilometres per hour.

**Greatest Speed over a Three-Kilometre Course.**—The following performance was approved as a National Record for submission to the F.A.I. for acceptance as a World's Record.—Aircraft: Supermarine Rolls Royce S.6B. Pilot: Flight-Lieut. G. H. Stainforth, A.F.C.; nationality, British subject. Date: September 29, 1931. Place: Le-on-Solent, Hants. Performance: Speed over the course, 655 kilometres per hour.

**Technical Commission for Gliding.**—Colonel the Master of Sempill was appointed to represent the British Gliding Association on the Gliding Technical Commission of the F.A.I.

**New Zealand Aero Club.**—The affiliation of the New Zealand Aero Club to the Royal Aero Club was unanimously approved.

**General Council of Associated Light Aeroplane Clubs.**—The report of the meeting of the General Council was submitted. The report dealt with the question of Certificates for Pilot Instructors and the International Third Party Convention.

**King's Cup Air Race, 1932.**—The various suggestions for next year's King's Cup Air Race were referred to the Racing Committee.

**Draft Convention Concerning Damage to Third Parties on the Ground.**—The Special Committee, consisting of Major K. M. Beaumont, Major A. Goodfellow and Major H. A. Petre, appointed by the Royal Aero Club to con-

sider the draft convention concerning damage to third parties on the ground, presented its first report. It was decided that the Special Committee should further consider the whole question with a view to the Club making definite recommendations to the Air Ministry.

**Finance Committee.**—The following Finance Committee was appointed to deal with all matters of finance concerning the Club:—Commander James Bird, E. C. Bucknall, Major C. J. W. Darwin, F. Handley Page, John Lord, J. Stewart Mallam, Colonel D. C. Robinson.

**House Committee.**—Major H. A. Petre and Mr. John Lord were added to the House Committee.

### General Council

REPORT of Meeting of the Royal Aero Club Associated Light Aeroplane Clubs' General Council, held at 119, Piccadilly, London, W.1, on September 30, 1931, at 11 a.m.

**Present:**—Colonel Sir Joseph Reed, in the Chair; **Bristol and Wessex Aeroplane Club:** Lord Aspley, Captain L. P. Winters. **Hampshire Aeroplane Club:** H. J. Harrington; W. Graham Gibbs. **Hanworth Club:** Colonel the Master of Sempill. **Lancashire Aero Club:** Major A. Goodfellow; Captain H. B. Burgess. **Leicestershire Aero Club:** S. Brown. **London Aeroplane Club:** Captain A. G. Lamplugh; H. E. Perrin. **Newcastle-upon-Tyne Aero Club:** Colonel Sir Joseph Reed; Captain J. H. Boyd. **Royal Aero Club:** Major K. M. Beaumont, D.S.O.; Lieut.-Colonel M. O. Darby, O.B.E. **In attendance:** H. E. Perrin, Secretary.

**Minutes.**—The Minutes of Meeting of the General Council, held on February 12, 1931, were read and signed.

**Membership.**—The following Clubs were unanimously elected to the General Council:—Brooklands Aero Club, Scarborough Aero Club, Herts and Essex Aero Club.

**Flying Instructors' Certificates.**—The General Council considered the proposal that all Pilot Instructors should hold a certificate entitling them to give flying instruction. It was decided to support in principle the special endorsement of "B" Licences for flying instruction entitling the holders to give flying instruction for hire or reward.

The following representatives were appointed to attend the Conference at the Air Ministry that afternoon and submit the views of the General Council: Colonel Sir Joseph Reed; Major K. M. Beaumont, D.S.O.; Major A. Goodfellow; H. E. Perrin.

**S.B.A.C. Challenge Cup.**—The suggestion from the Society of British Aircraft Constructors that the Race for the S.B.A.C. Challenge Cup should be thrown open to members of all Light Aeroplane Clubs flying their own aircraft was unanimously agreed to.

**Damage Caused by Aircraft to Third Parties on the Ground.**—The General Council considered a communication from the Air Council, dated August 28, 1931, together with the Draft Convention as to liability for damage caused by aircraft to third parties on the ground.

After hearing the observations put forward by Major Beaumont and Major Goodfellow, it was decided to appoint a Sub-Committee to consider the matter further, and to make its recommendations direct to the Air Council without further reference to the General Council.

The following Sub-Committee was appointed:—Major K. M. Beaumont, D.S.O.; Major A. Goodfellow; Major H. A. Petre, D.S.O., M.C.

Offices: THE ROYAL AERO CLUB,  
3, CLIFFORD STREET, LONDON, W.1.  
H. E. PERRIN, Secretary.

### Three Kilometre Record Modified

OWING to the discovery of an error in the figure of the air-speed record attained by Flt. Lt. Stainforth, A.F.C., on September 29, the average of four consecutive runs has now been altered from 408.8 m.p.h. to 407.5 m.p.h. The last four of the five runs are now counted for the average. The times originally given were:—No. 1, 415.2 m.p.h.; No. 2, 405.1 m.p.h.; No. 3,

409.5 m.p.h.; No. 4, 405.4 m.p.h. The modified results are:—

No. 2, 407.4 m.p.h.; No. 3, 409.5 m.p.h.; No. 4, 407.6 m.p.h.; No. 5, 404.5 m.p.h. Average of the four runs, 407.5 m.p.h. On September 15 representatives of the Royal Aero Club flew to Paris with the official report of the flight and the cinematographic records which were presented to the F.A.I. for acceptance.



# REPORT ON THE PROGRESS OF CIVIL AVIATION

**W**E take the following extracts from the Report on the Progress of Civil Aviation in 1930:—

## Imperial Airways, Ltd.

During 1930, Imperial Airways, Ltd., operated regular air services between London and the Continent and between England and India; also, for a short period, an experimental inland air service between Liverpool, Manchester, Birmingham and London.

A total mileage of 668,200, representing a total of 794,381,750 h.p./miles, was completed during the year in the course of subsidised flights on the regular European services, *i.e.*, approximately 87 per cent. in excess of the 425,000,000 h.p./miles required to be completed as a minimum under the subsidy agreement. In addition, 427,971 miles were flown on the India service. The services operated were as follow:—

London-Le Touquet-Paris.—225 miles in 2½ hr.  
London-Paris-Basle-Zurich.—535 miles in 7 hr. 10 min.  
London-Brussels-Cologne.—320 miles in 4 hr. 15 min.  
London-Birmingham-Manchester-Liverpool.—210 miles in 2 hr. 40 min., including intermediate halts.  
London-Karachi-Delhi.—5,500 miles in 7 to 8 days.

A weekly service was maintained in each direction throughout the year. During the summer, Imperial Airways, Ltd., continued to fly via Cologne-Nuremberg-Vienna-Budapest-Belgrade-Skopljé-Salonika, Karachi being reached in 6½ days and Delhi in 7 days. During the winter the journey occupied approximately one day longer, as it was not possible to operate the whole of the Central European section of the route by air and some of the stages were carried out by train. The section from Karachi to Delhi was maintained as an Indian State air service, with an aircraft chartered from Imperial Airways, Ltd., by the Government of India.

## Services Proposed

*Egypt-Capetown.*—On October 22, 1930, an agreement was signed with Imperial Airways, Ltd., for the operation of a weekly air service in both directions between Egypt (Alexandria or Cairo) and Capetown, which will work in conjunction with the existing England-Egypt service, and thus form a weekly air connection between England and South Africa.

*India-Australia.*—Imperial Airways, Ltd., have prepared a tentative scheme for a weekly air mail service between Calcutta and Australia to link up with the existing weekly passenger and mail service between England and India. The proposals for this service, which involve a subsidy, are under consideration. The time taken for the whole journey between London and Port Darwin would be 11 or 12 days.

## AIR SURVEY AND PHOTOGRAPHY

### Aircraft Operating Co., Ltd.

As a result of the success of the surveys of certain towns in Northern Rhodesia carried out by this company in 1928 and 1929, further contracts were secured from the same Government for similar work, in addition to another contract for the mapping of some 63,000 sq. miles of territory. The latter contract entails the provision of a particularly complete ground organisation, including the construction of some new roads.

The company's new survey aeroplane, known as the Gloster "Survey," has been used for the majority of this work, and has been found completely successful. It is interesting to note that with the aid of this aeroplane the whole of the photography of the 63,000 sq. miles contract mentioned above was completed in four months.

This company's expedition in South America has been principally engaged in completing the town and federal district of Rio de Janeiro.

### The Air Survey Co., Ltd.

This company, during the year under review, undertook contracts exceeding £100,000 in value.

In India, the various surveys referred to in the last report were all successfully completed, and further contracts covering the survey of some 2,500 sq. miles in United Provinces and 800 sq. miles in Bengal, were granted to and undertaken by the affiliated company, the Indian Air Survey and Transport, Ltd. Surveys for the Indian railways, covering some 1,200 sq. miles, were also carried out.

In the Mongalla and Upper Nile Provinces of the Sudan, the company's operations included the survey of an area of 12,000 sq. miles. The purpose of this survey was to enable the irrigation authorities to investigate the possibility of canalising that region in order to speed up the rate of flow of the Upper White Nile waters and thus avoid the present loss by evaporation.

A further survey of some 6,000 sq. miles in Uganda and the Belgian Congo, which is an extension of the Sudan contract, was also commenced during the year. Whereas the survey of the Upper Nile Provinces covered flat plains, this extension covers hilly and densely wooded country.

## Aerofilms, Ltd.

This company is no longer affiliated to the Aircraft Operating Co., Ltd., and is carrying on as a separate concern with a new board of directors.

## MISCELLANEOUS COMMERCIAL FLYING

### National Flying Services, Ltd.

National Flying Services, Ltd., made steady progress during the year with its scheme for establishing air parks in conjunction with local municipal authorities and for forming flying clubs at various important places in Great Britain.

During the year the total membership of the clubs rose from 1,100 to 1,744, and 294 members qualified for an "A" pilot's licence, 234 of these having received their initial training from the company's pilots. Hanworth Club, the largest of the clubs working under the company, increased its membership to 1,050, while 150 members have been trained to fly at that club since it was opened on September 1, 1929.

## LIGHT AEROPLANE AND GLIDING CLUBS AND PRIVATE FLYING.

*Light Aeroplane Clubs.*—During the year two new clubs (*viz.*, the Northamptonshire and Leicestershire Aero Clubs) were approved for subsidy under the Air Ministry light aeroplane club scheme. The total number of clubs participating in the scheme was 13.

*Gliding Clubs.*—In the early part of 1930 there were signs of an awakening of interest in gliding in the British Isles, and this movement received considerable impetus by the formation, in March, 1930, of the British Gliding Association, with headquarters in London.

By the end of 1930, 43 clubs in the British Isles had become affiliated to the British Gliding Association, and 50 or 60 other gliding clubs had been formed.

Noteworthy achievements during the year were Capt. Needham's flight of 2 hr. 15 min., and Flt. Lt. Buxton's flight of 1 hr. 52 min.

## AIRCRAFT DEVELOPMENT

The year 1930 saw the beginning of a great advance in the development of marine aircraft in this country. Of the aircraft already completed, the Short "Kent" flying-boat and the same company's "Valetta" float seaplane represent the largest aircraft of their types ever constructed in this country, while the large six-engined flying-boat, an order for which has been placed with Vickers-Supermarine, Ltd., under the Air Ministry experimental programme, will represent a further step forward.

The most important of the land machines constructed during the year was the Handley Page Type 42, a large 38-passenger landplane, which, when put into service by Imperial Airways, Ltd., on their Empire routes, will be the largest aircraft in the world employed on regular transport.

## ENGINES

*The Trend of Design in Recent Years.*—The last few years have witnessed a steady improvement in the performance and design of both air-cooled and water-cooled engines for large commercial aircraft. One of the most interesting advances has been the increase of the compression ratio of standard engines, combined with the retention of the same degree of reliability as was obtained with the original lower compression ratio, this achievement being the result of a lengthy investigation of the problems of fuel detonation. Another interesting development has been the employment of reduction gearing to reduce airscrew speeds, combined, of course, with increased aerodynamic efficiency of the airscrew itself. Increasing use



has been made of the air-cooled type, this being particularly notable in the case of large flying boats.

Advance has been made in the compression-ignition type of engine using heavy oil as fuel. The only engines of this type which have been used on aircraft in this country were those produced primarily for use on airships, and these are at present too heavy to be considered for aeroplane use. No doubt, however, the experience gained from these first engines will in time lead to a substantial decrease in their weight/h.p. ratio, as in the case of the petrol engine.

#### Lighter-than-Air

The airship programme for the year 1930 centred round the trials of R.100 and R.101. Details of the first flights which took place in the latter part of 1929 were given in last year's report. The acceptance trials in the case of each ship were to comprise a series of experimental flights at home, followed by a flight to an overseas base. The R.100 completed her trials on returning from Canada in August, and on October 4 R.101 started for India on the flight which was to have concluded her corresponding trials. The disaster which occurred at Beauvais the following morning with such grievous loss of life has necessarily involved a suspension of the airship programme.

### GROUND ORGANISATION AND NAVIGATION

#### Municipal Aerodromes, etc.

At the end of 1930 there were eight licensed municipal aerodromes in Great Britain, as compared with four at the end of 1929, but a considerably larger increase had been confidently hoped for, and the result is somewhat disappointing.

The towns which possessed licensed municipal aerodromes at the end of 1929 were Blackpool, Hull, Manchester and Nottingham; those added during 1930 were Bristol, Ipswich, Liverpool and Plymouth.

#### CROYDON-CONTINENT ROUTES.

*Meteorological Services.*—The most important development during the year under review in connection with the meteorological organisation on the regular air routes emanating from Croydon was the transfer from the Air Ministry to Croydon, on November 1, of the responsibility for the issue and receipt of the air route meteorological messages and the preparation of forecasts for air routes. Since that date all reporting stations in south-east England have reported direct to Croydon and all air-route meteorological messages from the Continent have been received by wireless at Croydon. The preparation and issue of meteorological information has consequently been considerably expedited.

The introduction of regular night air services between Croydon and the Continent necessitated the introduction of a 24-hour routine at Croydon, Biggin Hill and Lympne.

#### LICENCES AND CERTIFICATES

During the year there were current 1,708 "A" licences and 252 "B" licences, 33 navigators, 846 ground engineers and 121 aerodromes. There were 846 certificates of registration for aeroplanes and 806 certificates of airworthiness for aeroplanes, including 191 C. of A. for aircraft known to have been sold abroad.

It should be noted that about 30 per cent. of the pilots holding "B" licences also hold "A" licences, and that, therefore, these individuals are included under both headings.

### INVESTIGATION OF ACCIDENTS TO CIVIL AIRCRAFT

#### British Aircraft

The total number of accidents to which the Air Navigation (Investigation of Accidents) Regulations were applicable, during the period under review, was 53, as against

40 for the previous twelve months, the increase being more than fully accounted for, as in earlier years, by the growth of private flying.

Of these, 15 only were major accidents, i.e., accidents causing fatal or serious injuries to persons; none of the remaining 38 cases had serious consequences beyond extensive structural damage to the aircraft.

Only two accidents of a serious nature occurred in commercial aviation; one involved an aircraft belonging to Imperial Airways, Ltd., and occurred in France, the other involved an aircraft plying for hire on the cross-Channel route, and occurred at Meopham, in Kent.

*Causes of Accidents.*—Errors in airmanship were, in the opinion of the Inspector of Accidents, entirely responsible for nearly 70 per cent. of the accidents. Engine failure was a contributory cause in the case of one major accident (a private flying accident) and eight minor mishaps.

Bad weather conditions were also the primary cause of the one accident in regular air transport and of two fatal accidents to privately-owned machines. The other disaster in commercial aviation was a case of structural failure in the air.

### THE DOMINIONS, INDIA AND THE COLONIES

*Finance.*—The total sum allotted by the Empire for civil aviation purposes showed a considerable increase in 1930-31 as compared with the previous year:—

|                      | £          |
|----------------------|------------|
| Great Britain ... .. | 525,000    |
| Canada ... ..        | 1,020,910  |
| Australia ... ..     | 198,000    |
| South Africa ... ..  | 47,070     |
| India ... ..         | 355,570    |
| New Zealand ... ..   | 11,500     |
|                      | <hr/>      |
|                      | £2,158,550 |

The total sum voted in the Dominions and India in 1930-31, as compared with the sum voted in 1929-30, showed an increase of 34 per cent., the increase for the whole of the Empire, including Great Britain, being 31 per cent.

The mileage of regular air services in the Empire, including Great Britain, in 1930 was 23,005, as compared with the figure for the previous year of 20,440. The figure was made up as follows:—

|                      |        |
|----------------------|--------|
| Great Britain ... .. | 5,570  |
| Canada ... ..        | 7,170  |
| Australia ... ..     | 8,110  |
| South Africa ... ..  | 1,440  |
| India ... ..         | 715    |
|                      | <hr/>  |
|                      | 23,005 |

*Light Aeroplane Clubs.*—The following figures show the number of light aeroplane clubs in the British Empire at the end of 1930 as compared with the number in existence at the end of 1929, and clearly demonstrate that this movement has now obtained a firm footing. The clubs are divided into two categories, those receiving Government assistance, financial or otherwise, and those without such assistance:—

|                      | 1929. | 1930. |
|----------------------|-------|-------|
| Canada ... ..        | 23    | 21    |
| Australia ... ..     | 9     | 24    |
| India ... ..         | 6     | 7     |
| New Zealand ... ..   | 19    | 25    |
| South Africa ... ..  | 9     | 7     |
| Kenya ... ..         | 1     | 1     |
| Singapore ... ..     | 1     | 1     |
| Hong Kong ... ..     | —     | 1     |
| Great Britain ... .. | 23    | 29    |
|                      | <hr/> | <hr/> |
|                      | 91    | 116   |
|                      | <hr/> | <hr/> |

#### British Air Attaché, Buenos Aires

WING COM. R. B. MAYCOCK, O.B.E., has been selected to be Air Attaché to H.M. Embassy at Buenos Aires in succession to Wing Com. E. H. Johnston, C.V.O., O.B.E., D.F.C., who has held this post since December, 1927.

#### The Circuit of Poland

BRITISH engines have again made good in a foreign aviation competition. In the recent Circuit of Poland, in

which there were 24 entries powered by seven different types of engines, "Cirrus Hermes" engines (fitted with "K.L.G." plugs) succeeded in obtaining first, second, fourth and fifth places, viz.: 1st, Zwirko on a RWD.5 (inverted "Hermes II.B"); 2nd, Chorzewski on a RWD.4 ("Hermes II"); 4th, Sattel on a RWD.4 ("Cirrus III"); and 5th, Hirsband on another RWD.4 ("Hermes II").

# CORRESPONDENCE

The Editor does not hold himself responsible for opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for insertion in these columns.

## OUR AIRSHIP POLICY

[2774] There is little in your excellent editorial article on naval airships that any one can find to quarrel with, but I should like to suggest that it is quite unfair to consider the modern airship, inflated with helium and propelled by heavy oil engines, as equally vulnerable to aeroplane attack as the hydrogen-petrol type that we knew in the war. How is a modern aeroplane going to deal with a modern airship? Machine-gun fire, or even fire from the largest calibre weapons a short-range aeroplane could be equipped with, would have little effect on the airship, and any holes would be easily patched by her crew. The aeroplane's only effective weapons would be the bomb, which pre-supposes the aeroplane's ability to reach a certain position above the airship, which would be well covered by the airship's armament, or, probably in the near future, the air torpedo. Thus the helium-heavy-oil airship bears the same relation to the aeroplane as the battle-cruiser does to the destroyer. Again, when you compare the comparative efficiency of the airship and aircraft carrier on the trade routes, you do not point out that the latter is liable to submarine, mine and gun attacks from which the incomparably cheaper airship is free. Nor is the modern airship to be despised in an offensive rôle against surface craft, as she can carry her own torpedo-carrying aeroplanes, or be equipped with the air torpedo which will allow her to attack out of gun range.

We have no real excuse for not developing the airship—we are not so poor as Germany or less capable than the United States. Probably the reason we fail to do so is that under our defective defence organisation the Service which could make the most use of them has no say in the matter.

F. L. M. BOOTHBY,  
(Capt. R.N., retired).

Cowes, I.O.W.,  
October 9, 1931.

[2775] Despite the misfortunes that have dogged the development of the airship, there is every reason to believe that they will eventually be successfully developed further.

I would exhort designers of airships to make a close study of a natural creation (the Almighty's designs are perfect) and adapt the knowledge gleaned when considering their designs.

The natural creation, which should be studied in relation to airship design, is the fish. Now consider the movements of a fish, and notice, no matter what the speed of the stream in which it moves, how it maintains its progression "on an even keel" when it so desires. Here I would ask you to consider the case of R.101; this ship would have had a good chance to recover from her fatal dive if she had had the advantage of the fish, namely, the correct placing of the elevator fins.

Now with the fish the elevator fins are placed just behind the head, and so give a perfectly balanced control of the whole body; but consider how unfortunate the fish would be if its elevating fins were on its tail. Here you have the main bugbear of present-day airships, the elevating fins are placed so that "the tail wags the dog." It will be remembered that when airships have met upward currents of air their noses have shot skyward, and in the case

of R.101 a downward current was encountered with the reverse effect.

Having placed the matter of elevator control before you, I would next draw attention to another important matter, namely, speed. Having regard to the fact that the average gale has a speed of about 70 m.p.h., the speed of the ship must exceed this to give her a fighting margin.

My final suggestion (for the present) is that, as the airship appears to be the best solution to the problem of long-distance overseas travel, the cabins, etc., should be built into a large hull (similar to a flying-boat hull) suspended beneath the envelope, so that the ship might land on water, in harbours to load and discharge, or at sea in case of any emergency, and carry collapsible boats for various purposes. If a ship like the R.100 was converted on this principle, the extra space which is at present used for accommodation inside the envelope would be available for gas to increase the lift and remove the danger of people being shut inside the envelope in case of accident.

With reference to correspondence (numbered 2773) in the issue of FLIGHT dated October 9, might I add my behest that the R.100 should be kept in commission experimentally, and that passengers should be taken on trips to help to defray expenses; why should Britain be kept behind by "windy" armchair critics?

In closing, may I say, in case there are any who say it is easy to be wise after the event, that I drew the attention of the Air Ministry to the elevator weakness after the R.100 had completed her Canadian voyage and some time before R.101 commenced her fatal voyage, and I am emphatic in saying that all existing ships of the same design are equally unsafe.

JOHN D. HUGHES.

Chester,  
October 14, 1931.

## AUTOGIRO AEROBATICS

[2776] It is felt that the criticism of the demonstration of the Autogiro at Hanworth in your issue, dated the 16th instant, calls for comment.

As a display of aerobatics is normally understood to embrace such evolutions as the loop, roll or spin, and as the demonstration given included none of these, it seems fairly obvious that a few steeply banked turns have merited your correspondent's disapproval.

The question of the best method of demonstrating not only the very pronounced safety features of the Autogiro but also its extraordinary angle of climb and its easy manoeuvrability and constructional strength has received serious consideration by those concerned, and the demonstration given at Hanworth was an exact replica of over 500 given all over Great Britain during the last six and a-half months. You may be interested to know also that during that period 400 hr. have been flown and 135 towns visited, entailing a distance, in getting from place to place, of 11,110 miles without a single mishap. These figures speak for themselves.

Aerobatics are not encouraged by the Directors of this Company, but such of them as witnessed this demonstration given at Hanworth fully approved of what was done.

THE CIERVA AUTOGIRO CO., LTD.  
(R. A. C. BRIE).

Bush House, Aldwych, W.C.2.  
October 20, 1931.

## The Schneider Winner on View

THE exhibition in the Vickers Showroom at Broadway, Westminster (which has been recently considerably extended) of the Vickers Supermarine S.6B, with Rolls-Royce engine, which won the Schneider Trophy outright for Great Britain last month, and also established a world record speed of over 400 m.p.h., aroused great public interest. This interest was considerably enhanced during the evenings by the display in a window adjoining the machine of cinematograph film records of the actual Schneider Trophy event as recorded by the firm's cinematography department. The S.6B is now on view at the Motor Exhibition at Olympia, in a particularly prominent position, as it is hung up in the hall on a level with the gallery at that end, where are also that wonderful boat *Miss England II*

(Rolls-Royce engines) and the world's fastest motor car, the *Bluebird IV* (Napier engine). A constant stream of visitors go up and down the specially erected stairway in order to get a close view of the machine, for it is certainly one of the chief attractions of the show. This particular machine is S1595, the actual one in which Flt. Lt. Boothman permanently secured the Trophy for Great Britain.

## The High-Speed Flight

THE members of the Royal Air Force Club entertained the High-Speed Flight at dinner on October 16. Lord Cowdray, President of the Club, was in the chair, and among those present were Lord Amulree, Sir Philip Sassoon, and Air Chief Marshal Sir John Salmond.





# PRIVATE FLYING AND CLUB NEWS



## At Yeadon

*Opening of the new Leeds and  
Bradford Municipal Airport*

**F**OG completely spoilt the official opening of the new Leeds and Bradford Municipal Air Port at Yeadon on Saturday, October 17.

Standing on high ground, the new aerodrome has escaped the ground mists which have filled the surrounding valleys during the past few days, flying conditions have been ideal and there seemed no reason why this state of things should not continue on Saturday.

About half-past ten on Saturday morning there was a fair amount of mist about, so I went up with Mr. L. Dawson in the Civilian Coupé, to see how it all looked from the air. Conditions around were certainly poor, and one appreciated the excellent visibility obtained from this machine.

Long before the arrival hour messages were coming through showing that fog persisted all over the country. F/O. H. H. Leech, on the Arrow "Active," was laboriously making his way north from Farnborough. He was still in Lincolnshire after being forced down twice, but was carrying on. The Master of Sempill was held up somewhere near Leicester, the Comper "Swift" was fog-bound at Hooton, and so it went on.

An hour after the arrival time, and not a machine had arrived, and already people were entering the enclosures, so it was decided that, if it came to the worst, an impromptu show of some kind would have to be given with what private and club machines were available.

Up to now the aerodrome was still bathed in hazy sunshine, and it was fit for some sort of programme, and then came the *coup-de-grâce*. Low clouds rolled across the aerodrome itself, and within half an hour everything was literally blotted out. Lord Grimthorpe, the President of the Yorkshire Aeroplane Club, intended flying over from Malton to perform the opening ceremony, but he, too, was unable to get through, so Mr. H. Jennings, one of the oldest members of the Yeadon Council, opened the Air Port by saying a few words into the "mike."

Such disappointing an opening was hard luck on N.F.S., Capt. Worrall, and all those who had worked to give the show a rousing send-off, and, from what I saw of the arrangements both for the visiting pilots and the public, everything would have gone in excellent style.

Yeadon Air Port stands on a plateau some 650 feet above sea-level, and is  $6\frac{1}{2}$  miles north-east of Bradford and  $8\frac{1}{2}$  miles north-west of Leeds. It is jointly owned by these two cities, and the Yorkshire Aeroplane Club have left their old home at Sherburn and taken up quarters there. At present the only buildings comprise the usual N.F.S. hangar, a small privately-owned hangar and two semi-detached houses which have been knocked into one for a club-house. There are some 60 acres of drained and levelled landing ground, but this will be eventually increased to 150 acres. Yeadon is not the easiest of aerodromes to find for anyone flying from the south on account of the industrial towns around it, but it has two good landmarks, one being Yeadon Dam, a few hundred yards on its west side, and Eccup Reservoir, two or three miles north-east.

Before I left the club-house, who should enter but F/O. Leech. He had reached Sherburn, where he had finally to pack up, and he had been brought over from there by road. His was an excellent show, for conditions must have been well-nigh impossible. He admitted that it had been "somewhat foggy," and that Selby Cathedral ought to consider itself fortunate in preserving its spires intact.



**IN SPITE OF THE FOG:** (Left to right) Mrs. Hirst, Capt. Worrall, Mr. Stuart Hirst, Mrs. Jennings, Mr. H. Jennings (Acting Chairman of the Yeadon Urban Council) who opened the Air Port of Leeds and Bradford at Yeadon.

**A VIATION AT BROOKLANDS.**—The "dawn patrol," a feature of Brooklands which is enabling business men to get in an hour's flying before they go to work, has been hampered this week by early morning fog. Despite this, however, some 40 hours of instruction have been completed, and Mr. Roger Frogley has successfully carried out the night flying test for his "B" licence. Messrs. Fenn and Moore have completed their final tests for their "A" licences and Miss Jane Oldacre and Mr. H. C. Vaughan made their first solos. New pupils include Col. Pickard, Secretary of the National Safety First Association, Mr. H. S. D. Gabb, Mr. and Mrs. Joss and Mr. Spikens.

The new blind flying course is now being worked out by Messrs. H. D. Davis and E. A. Jones. The machines used

will have Reid-Sigrist turn indicators in both cockpits, and the course will embody many such details of thoroughness and finish. A new facility has also been arranged for private owners and others, namely, regular evening classes in air navigation, meteorology, engine maintenance, rigging and the theory of flying. Hitherto, lectures on these subjects have been given at Brooklands from time to time, but they will now be given in the Lecture Hall at the College of Aeronautical Engineering, Sydney Street, King's Road, Chelsea, S.W.3 (which was fully described in *FLIGHT* for October 16). There will be three lectures a week from 6 p.m. to 7 p.m. Further particulars can be obtained from either the Secretary of Brooklands School of Flying or the Principal of the College.



# The National Technical Competition for Tourist Planes

THE remaining competitions of the "Concours National Technique," the first part of which was described in the October 9 issue of FLIGHT, took place during the week beginning September 28 last. The three planes—the "Albert" A.61, two-seater, open cockpit, low-wing monoplane (95-h.p. Salmson engine), piloted by Edmond Albert, the constructor; the "Albert" A.62, a similar plane, but equipped with a 95-h.p. Renault, piloted by Sautereau; and the Caudron "Luciole," two-seater, open cockpit biplane (95-h.p. Salmson), piloted by Maurice Finat—continued to be the contestants. The results, together with the points awarded, were as follow:—

QUALITY OF CONSTRUCTION

|   | Albert<br>No. 1 | Albert<br>No. 2 | Caudron<br>Luciole |
|---|-----------------|-----------------|--------------------|
| General quality .. ..                                       | 40              | 40              | 25                 |
| Controls .. ..  | 7               | 7               | 5                  |
| Piping .. ..  | 14              | 14              | 15                 |
| Landing chassis .. ..                                       | 25              | 25              | 10                 |
| Comfort .. ..   | 25              | 27              | 20                 |
| Storage compartments ..                                     | 5               | 5               | 5                  |
| Motor accessories, tanks,<br>etc. .. ..                     | 18              | 12              | 18                 |
| Facility of handling .. ..                                  | 60              | 62              | 57                 |
| General security .. ..                                      | 33              | 33              | 27                 |
| Total points awarded<br>in the technical<br>competitions .. | 333             | 343             | 385                |

A Demonstration Tour around France took place at the termination of the technical tests. The take-off was made from Orly on October 5 last, and all the qualified participants in the Concours were required to effect it. The French affiliated Aero Clubs (Fédération Aéronautique Nationale) also organised a Tour of France, which coincided with that of the Concours Technique, and in which a number of planes of various new types were entered.

The circuit of this Tour comprised about 3,500 kms. (2,200 miles) in length. It took about nine days to accomplish, and included about 25 of the principal cities of France. The route was as follows:—Paris (Orly)-Douai-Saint Quentin-Chaumont-Nancy-Strasbourg-Mulhouse-Dijon-Chalon s/ Saone-Macont-Lyon-Montelimar-Avignon-

Cannes-Marseilles-Nîmes-Montpellier-Carcassonne-Toulouse-Bordeaux-Poitiers-Nantes-Angers-le Mans-le Havre-Paris (Orly).

Amongst the planes taking part in the Tour, in addition to the entries of the Concours National Technique, were a Lorraine-Hanriot 431, a small two-seater biplane equipped with a Lorraine 240-h.p. air-cooled engine, which is used for training purposes and performing liaison work; a Potez 39, new two-seater monoplane, observation type, equipped with a 500-h.p. Hispano-Suiza engine and of metal construction throughout; a new Schreck amphibian of the latest Navy type; and a Coussinet three-motor, 120-h.p. mail plane were also included in this "secondary" tour.

The Commandant, Louis Hirschauer, Chief of the Tourist Section of the Air Ministry; Henry Chollat, Secrétaire General of the affiliated Aero Clubs (Fédération Aéronautique Nationale), and other officials also accompanied the Tour, flying in two Farman light transport planes, type 190, one equipped with a 240-h.p. Lorraine and the other with a Jupiter "Titan" 230-h.p. engine. They made an inspection of the various airports, and also looked over the tourist planes, at the different points visited, which had received a premium from the Air Ministry to aid in their purchase.

The participants were cordially received throughout the Tour, and numerous receptions and banquets were held in their honour. A large number of "air baptisms" were also given by the two Farman planes at the various places visited.

The Tour terminated on Tuesday, October 12, last, when the planes arrived back at the Orly Airport, nine days after the start. Although retarded by thick weather earlier in the afternoon, the Caudron "Luciole," piloted by Maurice Finat, was the first to appear, and after encircling the airport, landed at 4.45 p.m. As this machine had already been awarded the greatest number of points on previous performances, it thus won the first prize of 150,000 francs. The Albert plane, equipped with a 95-h.p. Salmson engine, piloted by Delaird, arrived shortly afterwards, thus winning the second prize, consisting of 75,000 francs. The other Albert plane had experienced motor trouble, and a forced landing in the country so damaged it that it was eliminated from the Tour. The other planes arrived in quick succession.

A reception and lunch followed in one of the hangars. It was presided over by Mr. Georges Renaudin, the head of Mr. Riche's (the Assistant Air Minister's) Office, who made a happy speech, predicting an important development and a prosperous season for tourist aviation this coming year.

R. C. W.

AT HANWORTH.—On the tower of the clubhouse has appeared a tripod with four legs which emits a ruby light after dark. This new beacon has very good fog-piercing capacity, and is visible on a clear night from a distance of 10 miles.

Flt. Lt. Max Findlay, on Thursday, collected from Bourne End, in a Desoutter, the King's Swan Keeper and four swans which His Majesty has presented to the Hanworth Club. The birds seemed to be remarkably docile—for swans—quite unexcited by their joy-ride, and to have settled down more or less peacefully with the other water fowl who adorn that portion of the Cardinal's River which is not covered with aerodrome.

On Tuesday, October 27, following the General Election there will be a dinner and dance at Hanworth Club, tickets for which may be obtained for 7s. 6d., or 5s. for the dance only. Those who propose to attend are asked to book their tables before Sunday next. During the evening M. Georges Seversky will give selections from his repertoire.

THE PHILLIPS & POWIS School of Flying have greatly improved the outlook of their buildings at Woodley Aerodrome, Reading, by the addition of several flower beds, which have been tastefully laid out by Sutton & Sons, Ltd., the well-known gardening firm. Other amenities which are now available for members of the school

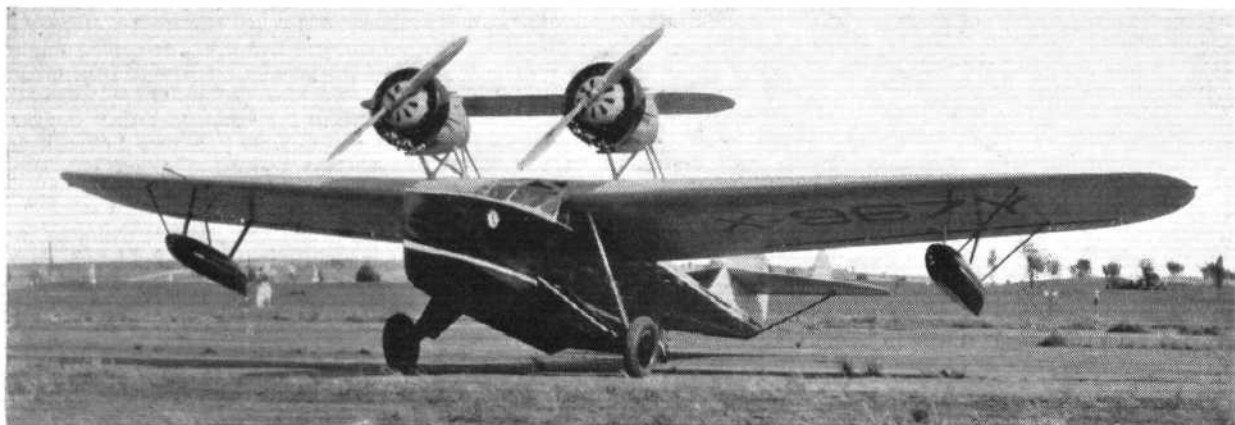
include a horse, which is kept for those who feel that their livers require more shaking up than aircraft give them. The amount of flying done at Reading is increasing steadily, and seldom do we pass the aerodrome without seeing several machines in the air.

THE YORKSHIRE COUNTY AVIATION CLUB is the title of the flying club which has been formed to carry on at Sherburn-in-Elmet Aerodrome now that the Yorkshire Aeroplane Club has gone to the municipal airport of Leeds and Bradford at Yeadon. At a recent meeting in Leeds, Mr. P. Dujardin presided, and over 50 members were enrolled. It is understood that the Blackburn Aeroplane & Motor Co., Ltd., at Brough are assisting the club as far as possible and that the secretary is Mr. H. R. Humpheries, Newsam Green, Woodlesford, Leeds.

THE NORTHAMPTONSHIRE AERO CLUB will be holding their annual Ball at the Salon de Danse, Northampton, on Friday, October 30, when Alexander's Medley Boys will supply the music, and the catering will be in the hands of Messrs. Griffiths and Guillaume. Tickets for the occasion, at 12s. 6d., including supper, may be obtained from H. Shale, 96, Abingdon Street, Northampton, or Miss Olney, Kinellan, Northampton. No one who can possibly get there should omit to do so, for this dance is invariably one of the best of the season.



# AIR TRANSPORT



## The Douglas "Dolphin" Amphibian

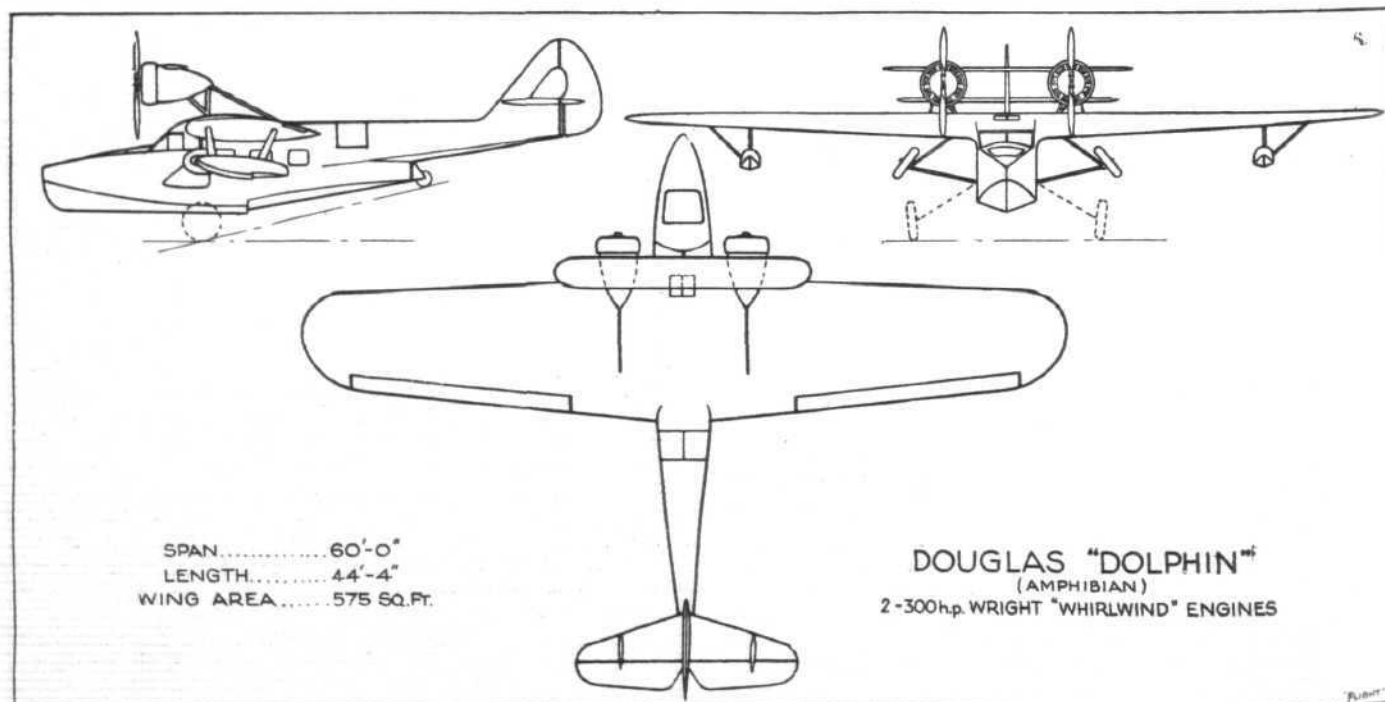
**S**OMETHING of a sensation was caused in aviation circles in the Dominion of Canada recently when, introduced by the newly-formed firm, Aerial Distributors, Ltd., of University Tower, Montreal, a Douglas "Dolphin" amphibian flying-boat paid a (literally) flying visit to Montreal, Ottawa, and the territory adjacent thereto. On its return to New York, it carried as passenger Col. Mulock, C.B.E., D.S.O., of Canadian Airways, Ltd., who has since expressed extreme satisfaction with its performance.

Product of a firm which has hitherto been kept adequately occupied with naval and military orders for the United States Government, the "Dolphin" is a high-wing cantilever commercial monoplane with its twin engines mounted in nacelles high above the wings, and considerably forward of the leading edge. Its outstanding points are, its extremely high cruising speed (for an amphibian); its ease of manoeuvrability both in the air and on the water, coupled with exceptionally clean running on the surface; and the manner in which structural weight

has been held down without sacrifice of strength to give low (and almost identical) factors of wing and power loading.

Built at Santa Monica, California, by the Douglas Aircraft Company, the present model of the "Dolphin" is the result of a series of experiments that extended over a considerable period before the craft was first presented to the public at the recent Detroit Show. Such alterations as have been made have brought marked improvements. Chief among them are the addition of a small wing mounted above the engine nacelles, joining and acting as a tie to them, and extending a few feet beyond them on either side; and the redesigning of the front portion of the hull, introducing a change from the more or less conventional blunt nose of a flying-boat to a bow modelled on the fore part of a motor launch. Both these changes have more than justified their adoption.

The hull of the "Dolphin" is of anodically-treated duralumin throughout, divided into six watertight compartments, all easily accessible for maintenance and



inspection. Access to the bottom and keel is gained by lifting out sections of centre board throughout the entire length of the occupied portion of the structure. The nose consists of an extra strong compartment which makes it safe (though probably expensive) to ram other craft when taxiing. Just aft of this is the forward baggage hold of 50 cub. ft., provided with a hatch from which the operations of anchoring or tying up can be carried out expeditiously and clear of the propellers. Next comes the cockpit, with 97 cub. ft. of space, and excellent visibility. All windows are adjustable, and those in front may be opened six inches to allow of direct vision in sticky weather without any draught entering the compartment.

Dual wheel control is standard, with rudder pedals on which the Bendix brake mechanism is actuated by slight pressure of the toe. Elevators and rudder are balanced, and, although the ailerons are not, lateral control is very light. The rudder control is amply sufficient, without using both feet on the same pedal, to turn against either engine alone, and it is not necessary to go through the acrobatic feats so long associated with flying-boats in order to get one's nose down in the split-second following the cutting out of the engines. Flying hands off, the machine picks up its own gliding angle when the power is shut off, and another interesting feature is that it may be taxied,



A photograph taken with ordinary hand-camera through glass windscreen of "Dolphin."

and exceptionally quiet, due to its remoteness from the engines. An easily removable window is fitted on either side, providing an aperture amply large enough for an emergency exit for the largest passenger. Additional baggage room and a lavatory occupy the space to the rear of the cabin. Six adjustable chairs with head-rests provide comfortable accommodation for the voyagers.

Just behind the passenger and baggage compartments, the hull departs from conventional boat practice and follows a design that is becoming increasingly common on American craft. The tail wheel is mounted at the heel of the second step, and what remains of the hull is more in the nature of a fuselage, carrying the tail surfaces at its extremity, but sustaining none of the shocks of landing. It is not normally in contact with the water, and it would require an extremely "cabre" landing to bring it into contact with the surface. The entire tail unit is of dural on spars and ribs of the same material.

The wing of the demonstration model which visited Montreal is of wooden construction, plywood surfaced, but succeeding craft are to have all-metal lifting surfaces, so there is little need to describe its construction. Fuel is carried in tanks of 90 (American) gallons capacity inside the wing, and outboard of the hull. Either engine may be fed from either or both pumps, and for emergencies there is a hand-operated wobble pump in the cockpit. Two 300-h.p. engines are mounted in nicely streamlined nacelles.

The oleo-pneumatic landing gear is ingeniously devised. The two hinged struts attached to the hull are enclosed in a streamlined or aerofoil section fairing, and in the raised position become small stub wings on either side with a pronounced dihedral. Here they can do a minimum of harm, and may, perhaps, help to lift their own weight. The landing gear has a tread of about 12½ ft. and can be raised or lowered by either pilot in 30 sec. The drag of the oleo strut is halved when the wheels are raised, because it is then only half its extended length.

With the power plant mentioned above, the "Dolphin" has a power loading of but 13 lb. per h.p., an all-out speed



The "Dolphin" flying over mountainous country in California.

or really hydroplaned, at 65 or 70 knots "hands off," without any tendency to bounce or jump into the air. An almost imperceptible pull back on the wheel lifts her off without any fuss. As previously indicated, the engines are mounted well forward of the leading edge, with the result that the propeller line is in front of the pilot's cockpit, and consequently of all the human occupants, except when someone is in the forward hatch.

A door separates the control compartment from the cabin, which is 10 ft. 4 in. long, 4 ft. 4 in. wide and 4 ft. 6 in. high, upholstered in customer's choice of finish, well ventilated



A side view of the Douglas "Dolphin" amphibian.



of 150 m.p.h., a cruising speed of 125, and a landing speed of 60-65. Its climb is about 900 ft. per min. at a gross weight of 7,800 lb. The dimensioned drawings will give an idea of its size and of other characteristics. No amphibian as yet seen in Canada has anything like the performance of this machine, and with the recent reduction in air-mail agreements and the consequent access of interest in

passenger and freight carrying and other sources of revenue, it seems to have arrived at an opportune moment. The accompanying photograph, taken through the glass of the cockpit with an ordinary (and very aged) Kodak, gives some idea of its possibilities for aerial survey and photography.

A. H. S.

## AVIATION AT GIBRALTAR

**A** VENTURE which should prove a great success is the undertaking of Gibraltar Airways Limited, which is operating a Saro Windhover amphibian between Gibraltar and Tangiers. The chief object of the company is to operate a regular service twice daily between these two points. As this journey only takes some 20 minutes, it should prove one of the cases where flying can be made to pay, since steamship communication between Gibraltar and Tangier is very infrequent; the only daily service entailing crossing to Algeciras and catching the Spanish boat for Tangier, a procedure which may well make the journey a matter of six hours or more. At present the fare by air being asked is 30s. single and £2 15s. return, with cheap week-end ticket at £2 10s. The big shipping companies which call at Gibraltar issue vouchers which are at present in use for the sea passage between Gibraltar and Tangier, these are valid on the Gibraltar Airways service for a payment of only 15s. extra. Mail contracts are now under consideration, and negotiations for securing these are in progress besides the regular service. Tourists are also making extensive use of the Windhover for joyrides round Gibraltar and for special journeys to many parts of the western Mediterranean.

The advantage of an amphibian on such a service is an outstanding example of the utility of this type of aircraft. The machine is able to use Gibraltar harbour on all occa-

sions, whatever the state of the weather, whereas Tangier harbour is impossible when the wind is in certain directions; therefore, when these conditions occur, the aerodrome, some six miles south-west of the town, is used instead. This aerodrome is the property of the Aeropostale, who run services from Toulouse to Dakar, and it is through their courtesy that Gibraltar Airways are able to land there.

During the first few weeks that the machine was in commission, it was flown by Capt. E. W. Percival, with Mr. Matthews as ground engineer in charge. Flt. Lt. J. D. Wilson and Flt. Lt. Loch are now the permanent pilots, with Mr. Warner as ground engineer. The directors of the company are Maj. W. T. Blake, Capt. E. E. H. Jackson, Lt. Col. W. F. Ellis and Mr. George Gaggero (chairman and managing director of the Bland Line) as managing director. The opening of the service and the arrival of the machine in Gibraltar were occasions for much jubilation, and the christening ceremony was performed (in the absence of the Governor) by Mrs. Maitland-Makril-Crichton, wife of the Acting Governor, who christened the Windhover "General Godley," after General Sir Alexander Godley, the present Governor.

On the Tangier side, an introductory luncheon was held, at which the Sultan of Morocco was represented by the Mendoub and many foreign ministers, and great enthusiasm was shown at starting the service.

### Winter Air Mails to India and Africa

The Postmaster-General announces that the winter time-tables of the direct England-India and England-East Africa air mail services will come into operation on October 17. Under the new time-tables the service to India will continue to leave Croydon on Saturdays, but the day of departure of the service to East Africa will be altered from Saturday to Wednesday. The Indian air service will no longer call at Alexandria or Cairo, but a call will be made at Tiberias (Palestine). The mails will be due to reach Tiberias on Tuesday evening, Baghdad and Basra on Wednesday afternoon, Bushire on Thursday morning, Karachi on Friday evening and Delhi on Saturday afternoon. The homeward air mails will be due to leave Delhi on Tuesday and Karachi on Wednesday, and to arrive at Croydon the following Tuesday morning. The revised working of the England-British East Africa air mail service will commence on Wednesday, October 21, and the mails will be due to reach Alexandria on Saturday afternoon, Khartoum on Monday afternoon, Kisumu (Kenya) on Wednesday afternoon and Mwanza (Tanganyika) on Thursday morning. The incoming mails will be due to leave Mwanza on Thursdays and to reach Croydon on Fridays eight days later. There will be no air mail despatch to British East Africa on Saturday, October 17. The latest times for posting air mail correspondence in the air mail letter-box outside the General Post Office, London, for the countries served by the Imperial air mail services will be as follow:—Palestine, Syria, Iraq, Persia, India and Ceylon—11.0 a.m.

on Saturdays. Egypt, Sudan, Kenya, Uganda, Tanganyika, Zanzibar, Belgian Congo (via Sudan)—11.0 a.m. on Wednesdays.

### Accidents in Civil Aviation

On Thursday, October 29, 1931, Capt. A. G. Lamplugh, F.R.Ae.S., M.I.Ae.E., will deliver his important lecture on "Accidents in Civil Aviation." Capt. Lamplugh is well known as the leading aviation insurance expert, and has had as great an experience of the investigation of accidents as anyone in aviation. He is in close touch with all sides of the accident problem throughout the world, and in the course of his lecture he will detail the causes of accidents and make an analysis showing in what way progress has been made and putting forward suggestions for the lessening of accidents. Coming from such an authority as Capt. Lamplugh his observations and conclusions will be of the greatest possible value to all those who are interested in aviation, the designer, the pilot and the passenger. Capt. Lamplugh will show many interesting slides showing actual accidents. His lecture begins at 6.30, and will be delivered in the Lecture Hall of the Royal Society of Arts, 18, John Street, Adelphi, W.C.2.

### Wireless Telegrams from Aircraft

PASSENGERS on board aeroplanes belonging to the French commercial lines are now able to send wireless telegrams, while in the air, to addresses on land. The cost is 4.25 fc. (8½d. at par) a word.

### The Guild of Air Pilots and Air Navigators of the British Empire

At the monthly meeting of the Court, held on October 19, at the offices of the Royal Aeronautical Society, the following items of interest were among the resolutions passed:—

**Johnston Memorial Prize.**—The Court of the Guild has decided that the honour of receiving this prize for the first year of award shall be bestowed upon Mr. F. C. Chichester for the following outstanding feat of air navigation for the year:—"He left Paerenga Harbour, in the North of New Zealand, and shaped a course purely by solar observation to Norfolk Island, which lies 470 sea

miles in a north-westerly direction. On April 1 he flew from Norfolk Island to Lord Howe Island, a distance of 450 miles, and made an excellent landfall." (Norfolk Island is only approximately five miles long, and Lord Howe Island is even smaller.) This prize has been made possible by subscription among a few friends of the late Sqd. Ldr. E. L. Johnston, in his memory, to be presented annually for the best feat of navigation by a person in a civilian capacity.

**Annual General Meeting.**—This is fixed for November 26, to be followed by an informal gathering of members and Associates of the Guild. Particulars will be circularised to members and Associates shortly.

# AIRPORT NEWS

## CROYDON

**T**HINGS are beginning to get very humdrum here, and it is becoming increasingly difficult to find anything of interest to write about week by week. There has been a very large amount of joyriding this week; this appears to become a more popular pastime weekly. On one day alone Imperial Airways had "Heracles" and "Hanno" hard at it all the afternoon. "Heracles" was carrying the full complement of 38, and "Hanno" 22. The latter has less seats, as it is one of the Eastern-type H.P.42's.

Surrey Flying Services and Rollason Aviation Co. seem to be full up with school work, and one can see their respective "Moths," G-AACO, G-ABPC and G-EBSO up and down from about 9 a.m. until 5.30 p.m. incessantly, every day, including Sundays.

British Air Transport is changing hands, and I understand the new directors are likely to launch out on a bigger scale than previously.

Personal Flying Services have done several return trips to Geneva lately with their Junker, while the Sikorsky has been stranded up in Scotland for several weeks past with a "dud" engine. Dick Godfrey is keeping it company there, and it is expected that by the time he gets back here he will be unable to speak proper English, and is

likely to get his name changed to Jock Godfrey. I hear that K.L.M. are going to name all their machines after various birds, and the last letter of the registration marking will be the first letter of the bird's name. For example, PH-AEZ will be named "Zwallow," or in English "Swallow." This seems quite a good scheme, as why should not machines be named, the same as a ship? Imperial Airways adopted this idea many years ago, and inside the company the machines are always referred to by name and not by the registration letters.

Lord Amulree arrived from Paris on Friday, having apparently been recalled to duty according to daily Press reports.

The winter services are now in full swing, with a consequent reduction in the numbers of passengers carried. This is bound to be the case, as the actual number of arrivals and departures is only about half what they are in the summer. Actually, for the number of services now operating, passenger figures are well maintained.

One looks forward with optimism to the time when air transport will not be quite such a seasonable concern as it is at present.

The traffic figures for the week were:—Passengers, 804; freight, 65 tons. P. B.

## NIGHT FLYING AT HESTON

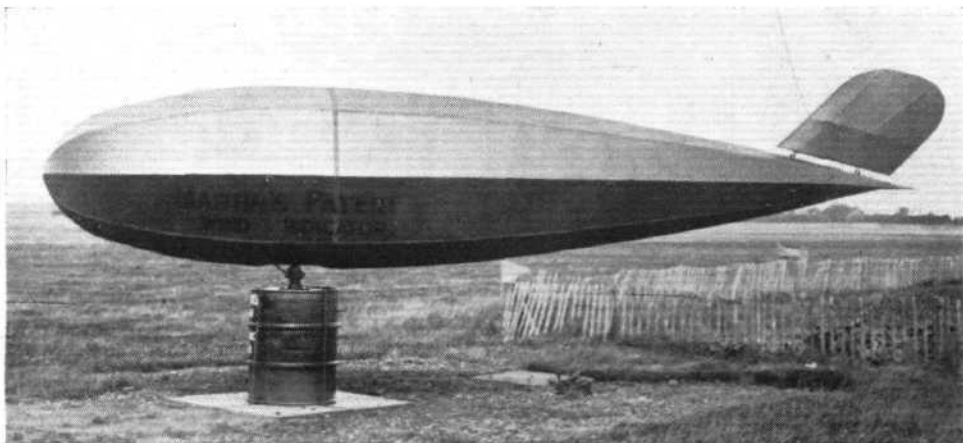
**L**AST Sunday, October 18, the weather permitted night flying to be carried out at Heston in accordance with the programme already announced for each week-end during October. A feature which had been particularly advertised for this night's show was a parachute drop by Capt. Stewart, whose parachute was to be illuminated. The illuminations, supplied by the Ever-Ready Co., Ltd., took the form of three small torches, two of which were affixed to Capt. Stewart's feet while the third was on the top of his head, all arranged so that their beams shone upwards in a manner which it was hoped would make the parachute descent look very spectacular. Actually things did not go according to programme, and, although Capt. Stewart made his descent successfully and landed in the middle of the aerodrome, the connections between the batteries and the lamps unfortunately carried away at the instant of opening the chute, so we only saw the three lights falling through space until they were extinguished at the moment of opening.

In connection with this particular event, a friend we were talking to at the aerodrome who had attended a limited number of air pageants and other aerial displays, but who is not directly connected with aviation, asked us why everything at an aerodrome always seems to hang fire

for so long. No show, it was averred, was ever brought off to time or in a snappy sort of manner. It is really rather unfortunate that people outside the aviation circle and who are, therefore, not likely to be very enthusiastic, should be put off by a lack of organisation, but we are bound to admit that in very many cases this particular person was entirely justified. Sunday was a case in point, for there was much delay both when taking off for the drop and also when picking up Capt. Stewart afterwards.

We understand that Capt. Stewart will be making another attempt to illuminate the parachute at night, and we hope that on that occasion he will be more successful. It would be well if arrangements were made to prevent any possibility of the parachute descending on to the paraffin flares which are laid out for landing purposes; there did not appear to be any on Sunday.

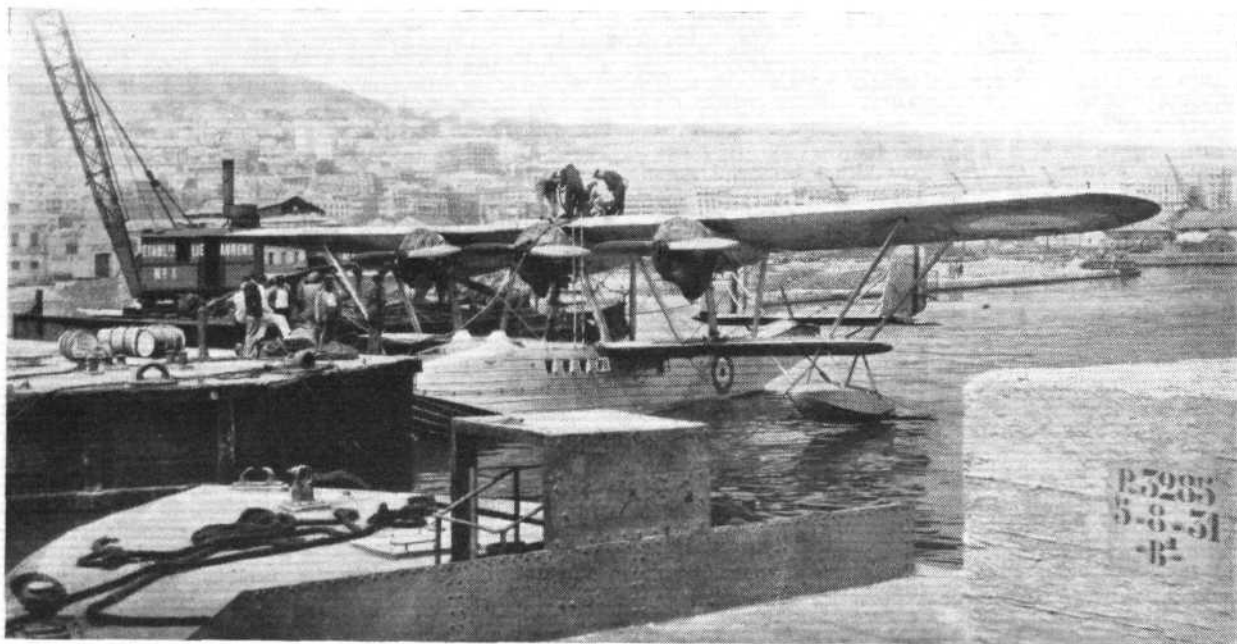
The business in second-hand aircraft would appear to be one of the staple industries at Heston, for all the agents there are increasing their premises. We noticed that Brian, Lewis & Co. have made a large addition to their hangar by extending it forwards, and Henlys, Ltd., have also taken one of the new showrooms, in which they are displaying motor cars as well as aircraft.



**THE NEW MARTIN WIND INDICATOR:** Built in the shape of an airship, this wind direction indicator is mounted on a drum with hydraulic damping so that it does not swing about to every little gust. A special device automatically returns the indicator to the direction of best run when there is no wind. The length is about 30 ft. The indicator illustrated has been erected at Heston. (Flight Photo.)



# AIRISMS FROM THE FOUR WINDS



**THE SARO A7 AT ALGIERS:** A picturesque view of the R.A.F. flying boat refuelling with Shell aviation spirit at Algiers during its recent cruise to the Near East.

## "Graf Zeppelin" again Crosses the Atlantic

THE German airship *Graf Zeppelin* left Friedrichshafen soon after midnight on October 16-17 for yet another flight across the Atlantic to Brazil. Capt. Lehmann was in charge and she carried 17 passengers and mails. Pernambuco was reached on the night of October 19.

## More Long-Distance Flights

SEVERAL aerial hikers are making, or are about to make, trips to distant lands. On October 18 Miss Aline Barton, a 19-year-old native of New Zealand, set out from Heston for Kenya. Mr. C. A. Butler, who learnt to fly in Australia, is about to fly back in a Comper "Swift," starting from Lympne on October 26. He hopes to beat the record for this journey—but this is not his main object. Two others, Mr. Leslie and Mr. Kenneth Hamilton, flying, we believe, a "Puss Moth," are also preparing a flight to

Australia from Hanworth. We hear also that Mr. J. A. Mollison—who, by the way, has not, as stated last week, left for Australia—hopes to set out on a flight to South Africa next month.

## Progress of the Blackburn Demonstration Tour

On Friday, October 9, the mechanic sent out from England in response to a telephone message from Mr. Blackburn, travelled by Imperial Airways to Cologne, where the "Lincock" and "Segrave" had remained overnight, the "Bluebird" having gone on ahead to Prague. By 10 o'clock the next morning adjustments were finished and both machines left Cologne for Prague, the mechanic, who is accompanying the tour to Athens, travelling in the "Segrave" in place of Mr. Blackburn, who had decided to continue his journey by rail in order to keep his appointments at Athens on October 11. Very successful demonstrations were given by all three machines at Prague on October 12 and 13, and on October 14 they left for Vienna, spending the night at Zlin. The next morning they reached Vienna, and in the afternoon went on to Budapest, where they stayed overnight. The next and last demonstration place on the outward journey is Belgrade, after which, according to the programme, the 570 miles to Athens will be covered with only two stops, namely, at Uskub and Salonika.



**THE FRENCH NAVY'S NEW "BLIMP":** Two views of the small dirigible "V.II" constructed by the Societe Zodiac and recently tested at Rochefort for the French Navy. It carries a crew of four and attains, it is claimed, a speed of 70 m.p.h. Note the pronounced trefoil cross-section of the envelope.





### R.A.F. East African Flight

FOUR Fairey III F aircraft of No. 45 (Bomber) Squadron left Heliopolis on October 14 on a flight to Kano in Nigeria. Air Commodore R. P. Ross, D.S.O., D.F.C., accompanies the flight as representative of the A.O.C. Middle East Command. The remaining personnel are:—Sqd. Ldr. F. J. Vincent, D.F.C. (in command), Flt. Lt. H. E. Walker, M.C., D.F.C., F/O. A. R. Combe, Flt. Sgt. Johnson, Sgts. Pitcher and Kemsley, and A./Sgts. Tibbles and Jones. The flight arrived at Wadi Haifa on the day of departure. On the 15th it arrived at Khartum, on the 18th at El Fasher, and on the 20th at Geneina. On the 21st it started for Ati. It is due at Kano on the 29th inst., and will remain there until December 1. It is due back at Heliopolis on December 11.

### Italian Mass Attack on Atlantic

It is reported that the Italian Air Ministry has planned a formation flight of 24 seaplanes from Italy to New York. The flight will probably start next month, and Gen. Balbo, Italian Air Minister, will—as on the previous flight to South America—be in command. Savoia S.55 flying boats will probably be employed, and each machine will carry a crew of two pilots, one mechanic and a wireless operator.

### A Tennis Star in the Air

M. HENRI COCHET, the famous lawn tennis player, is now taking lessons in flying at Villacoublay Aerodrome.

### Maj. Doolittle Does Much

MAJ. "JIMMY" DOOLITTLE, of the U.S. Army Air Service—and winner of the Schneider Trophy in 1925—has breakfasted in Canada, lunched in the U.S.A., and dined in Mexico all in one day. He left Ottawa at 4.30 a.m., October 20, and arrived at Washington at lunch time. Continuing shortly after, he reached Mexico City at 5.15 p.m.—having thus covered about 2,500 miles in 13 hours.

### A Fit of the Blues

SOME years ago, it may be remembered, the Prime Minister, Mr. Ramsay MacDonald, flew in a Royal Air Force aeroplane to address a political meeting of Labour supporters, for which he was suitably reproved in the House of Commons. He has not made a similar *faux pas* since. On October 17 the *Daily Herald* published a message from its correspondent at Seaham stating that "a pilot in full R.A.F. uniform brought two young women from London by air to-day (the 16th inst.) to help Mr. MacDonald in his campaign here." The explanation is quite amusing. Two ladies chartered a D.H.50 from Imperial Airways to fly north on some non-political business. The pilot was Capt. Olley, who was wearing the uniform of his company. They were forced down by fog near Hawthorn. The correspondent in question was apparently not able to distinguish between the uniform of the Royal Air Force and that of Imperial Airways. Possibly he has since been taking lessons in the difference between navy blue and Air Force blue.

### Society of Model Aeronautical Engineers

The first meeting of the winter season will be held at the Y.M.C.A., Tottenham Court Road, W.C., on Thursday, November 5, at 7.30 p.m., when Mr. Henry Greenly, A.I.Loco.E., has kindly promised to give a talk on "The Railwayman Amongst Aeroplanes—Some Reminiscences." A cordial welcome is extended to all those interested.

### Flying under Tower Bridge

On October 15 Maj. Christopher Draper, D.F.C., of Hamilton Road, Dudden Hill, Willesden, was summoned at the Mansion House for dangerous flying and for flying without a licence. He pleaded guilty and was bound over. It was stated in evidence that Maj. Draper twice flew under Tower Bridge on September 30. Accused made a statement in which he said that he hired the machine from the de Havilland firm to test a camera. He had to borrow £5 to hire it, as he had no income of any sort. He flew under the bridge to prove that after a lapse of 10 years he was still the highly skilled specialist which he used to be. He had been piqued when some friends suggested that he had become soft. If a fine were imposed he would have to go to prison, as he was absolutely broke. Alderman Sir Stephen Killick, in binding Maj. Draper over, remarked that he had first intended to fine him £100. He expressed surprise that a man with such qualifications should find it so difficult to get a job.

Regarding our remarks on this matter in our issue of October 9, we have received the following letter from Maj. Draper:—

"As such a very old pilot and lifelong reader of your paper, I hope you will extend to me the courtesy of your columns, in which to reply to the strictures of my flight of September 30, contained in your issue of the 9th inst.

"I should be the last to expect you to encourage 'stunt' flying, and I am aware that my bridges flight must have seemed to many a useless and foolhardy stunt. Even so, I submit that your comparison of me to some 'hare-brained youngster' flying in a selfish and inconsiderate manner is unduly severe. In fact, it has hurt me more than I can say.

"Throughout my long career as a pilot I honestly feel that I never once flew in a senseless and inconsiderate manner.

"My flight beneath the bridge was no mere stunt designed to amuse the idle crowd, of whose presence I was quite unconscious. I set out to prove that, despite an interval of long years, with a bare half-hour's practice, it was still possible for a man to perform a feat of this kind. For feat it was, although I should be the last to take credit to myself for it. I submit that I succeeded in doing what I set out to do.

"I am surprised that it has not occurred to you that my flight demonstrates, in the most striking way possible, the enormous advance made in civil aviation in recent years. Ten years ago, under similar conditions, I do not believe that my flight of September 30 would have been humanly possible—after so long an absence from flying.

"To suggest that a performance of this kind is likely to injure civil flying by making it appear dangerous to the general public is surely absurd. It would be as sensible to argue that witnessing the antics of trick cyclists at a circus is likely to deter parents from giving their children bicycles.

"I cannot even plead guilty to having set a bad example, as I am confident that no pilot with a job and a licence to lose will attempt to copy me.

"I feel sure that the majority of your readers, who know the facts, will fully endorse Sir Stephen Killick's verdict, which completely cleared me of any suggestion of foolhardiness or vainglory. CHRISTOPHER DRAPER."

### Aircraft to the Rescue of Ice-bound Ships

TRAPPED, 300 miles from Nome, Alaska, by an early freezing-up of the Beaufort Sea, the Hudson Bay Co.'s fur-trading steamer *Baychimo* is doomed to remain in the ice until next summer. Three aeroplanes have, however, succeeded in reaching the steamer, and are bringing back to Nome eleven passengers and a considerable portion of the cargo of fur.



**A LIGHTER LIGHT PLANE:** We show above a novel mascot made by A. E. Lejeune, Ltd., of Gt. Portland St., W.1, and designed by Mr. R. A. Allan. It is a model of a D.H. "Puss Moth," about 7 in. span, made in the form of a cigarette lighter. (FLIGHT Photo.)



## TRAINING THE R.A.F. RESERVE

**T**HE Reserve of Air Force Officers fills some 15 pages of the monthly Air Force List, of which over eight pages are occupied with the names of flying officers. There are some 90 odd names on a page. It is a section of the Air Force List which is not very often consulted. In time of peace there is no body of men which, generally speaking, attracts less attention than a reserve of officers for any of the fighting services. In the days when shepherdesses proverbially spend their time in piping, the reserve officer is neither fish, fowl, nor good red herring. He is not a complete civilian, yet he cannot swagger about in uniform and impress the shepherdesses with his gallantry. He has not even the satisfaction which pertains to the officer of auxiliary forces of belonging to a definite unit, and of turning out on occasions to show the world that he can drill or ride or fly in good style. Certainly the regulations do provide that reserve officers may be required to wear uniform when attending for training, but there is no definite obligation. The only case we can remember of seeing a reserve officer in uniform was at one display at Hendon, when F/O. F. Courtney was called up to fly the first Autogiro.

When war is in the gates, the reserve of any fighting service becomes a matter of first-class importance. To no service is it more vital than to the Royal Air Force, which is likely to be the first service engaged. Lord Trenchard once prophesied that in the opening weeks of a great war the casualties among pilots would be very high, and rapid replacements are a matter of the first consequence. It was partly this consideration which induced him to institute the system of Short Service commissions, as officers who receive such commissions have to go on to the reserve after completing their five years of service with the squadrons. Other sources from which reserve officers are drawn are ex-officers who served in the war, pilots in civil life, and gentlemen selected for the grant of a reserve commission. Officers of the last-named class are taught to fly at the expense of the public.

The obligations of a reserve officer who is in the pilot class are to fly solo not less than 12 hours a year, together with appropriate tests. When possible, this will be carried out in four quarterly periods, but this may be varied according to circumstances. The training period is not

supposed to exceed 20 days in any one year. As reserve officers on mobilisation take their place in the units of the regular R.A.F., it is only reasonable that they may be called upon to carry out their annual flying and training with a regular unit. Usually, however, this annual training is carried out at an approved civilian flying school.

Though the Reserve of Air Force Officers, like other reserves in Great Britain, habitually hides its light under a bushel, the provisions made for ensuring that the officers can fly well are good. The training, and re-training, of these officers is one of the things which Great Britain does really well. There are four approved schools for reserve training in the country, namely, that managed by the de Havilland Aircraft Co., Ltd., that of the Bristol Aeroplane Co., Ltd., that of the Blackburn Aeroplane & Motor Co., Ltd., at Brough, and Air Service Training, Ltd., at Hamble. The last-named has taken the place of the original Armstrong-Whitworth school near Coventry.

The whole organisation of the reserve is under a Superintendent, who has his headquarters at Hendon. The present Superintendent is Wing Com. J. Y. Guilfoyle, O.B.E., M.C., and his staff consists of Sqdn. Ldr. J. M. Robb, D.S.O., D.F.C., and F/O. C. R. J. Hawkins. These are all highly-qualified officers, and Sqdn. Ldr. Robb has been Chief Flying Instructor at the Central Flying School at Wittering. There is no greater expert in the country on methods of giving flying instruction than he. All the instructors at the four schools have to be approved by the Air Ministry before appointment, and the superintendent and his staff keep in close touch with them. Most, if not all, of these instructors have been through an instructor's course at the C.F.S., and so every care is taken to provide that C.F.S. methods, than which there are none better in the world, are practised at the reserve training schools. The question has been raised—in fact, we have alluded to it ourselves—whether the best arrangement would not be for the C.F.S. instructors to visit the reserve training schools as they visit the flying training schools of the R.A.F., as well as Cranwell and the University Squadrons. It has to be remembered, however, that it is necessary for the four reserve schools to undertake the training of civilian pilots as well as of reserve officers, and that the latter element has somewhat different requirements from



**FLYING INSTRUCTORS AT HAMBLE: L. to R.: Fl.-Lt. R. P. P. Pope, F/O. M. C. Dudding, Grp. Capt. R. J. F. Barton (Commandant), Fl.-Lt. H. F. Jenkins, F/O. R. C. Berlyn. (FLIGHT Photo.)**



those of the former. It may well be that the two cases of the reserve officers and of the private pupils are best served by a special staff which upholds the best methods of Wittering, but is more free to study individual needs.

A visit to one of these reserve training schools is a very interesting experience. It was recently the good fortune of the present writer to receive an invitation to visit Hamble, where Air Service Training does its work on the larger and better of the two Avro aerodromes. The Hampshire Aero Club also uses the same aerodrome, and the blue stripes on the fuselages of its light aeroplanes and their blue struts add to the brightness of the scene. Group Captain R. J. F. Barton, O.B.E., R.A.F. (retired), is the commandant of the school. He was commandant of the flying training school at Netheravon up to the time when it was closed down in the interests of national economy. He then left the service in order to give his experience of flying instruction and of organisation to Air Service Training. The chief instructor is Flt. Lt. H. F. Jenkins, and next to him comes Flt. Lt. R. P. P. Pope, D.F.C. A photograph of the flying staff accompanies this article. Flt. Lts. Jenkins and Pope have been instructors at the C.F.S., and are fully qualified to give instruction even in the very advanced subject of flying by instruments. As the instructors are, so is the school. Its keynote, as it appears to the visitor, is thoroughness. Nearly every branch of the subject of flying is dealt with, and dealt with in a very thorough manner. A man (in this case we do not have to add "or woman," for A.S.T. does not accept women pupils) can go to Hamble completely unable to distinguish between a fuselage and an empennage, and in due course can leave as an accomplished pilot and navigator, able to fly blindly through clouds, able to deal with a fractious engine, and even able to fold a parachute and pack it. A slipway has been completed, and soon seaplane instruction will also be available.

So far as the circumstances of the pupils allow, they go into residence at Hamble and stay there until they have finished their course, or at least for as long a period at a time as is possible. Living quarters have been built, and the rooms look very comfortable. The club-house is the old Avro mess, completely altered and smartened up, and in it are the mess, the lounge, the library, etc. The year, it is surprising to learn, is not divided into terms and holidays, but work goes on continuously. It is hard work, too, especially for the instructors. Amusements are not too plentiful at Hamble, and Southampton is some little way off. Southampton Water provides boating and fishing, and a squash racquet court has just been built on the aerodrome. The pupils, however, have so much to do, with lectures and ground instruction as well as flying, that the remoteness of Hamble is no disadvantage. The reserve officers are probably working against time, and cannot indulge in much leisure. The private pupils are paying for their instruction, and paying rather high, for A.S.T. does not profess to be a cheap school, and so they naturally want to make the very best use of their time. The experience of the school is that the men are usually so keen to get on that they gladly scorn delights and live laborious days. It is what one would expect from the keen class of men who go to such a school. Among the pupils were to be seen a Canadian pilot with 1,000 hours of flying to his credit, a Parsi who has qualified, or nearly qualified, in almost every branch of the subject which can be taught, and one wearing the blazer of an Oxford College with a familiar coat of arms on the pocket. All were obviously keen as mustard, and only anxious to get on with the work and pass their tests. It seems most probable that most of the private pupils who pass through Hamble will see the desirability of joining the reserve and putting their abilities at the disposal of their country in case of necessity.

F. A. DE V. R.

# THE ROYAL AIR FORCE

London Gazette, October 13, 1931.

## General Duties Branch

Lt. C. W. Phillips, R.N., is reattached to R.A.F. as a Flying Officer with effect from September 1, and with seniority of September 1, 1926. The following Pilot Officers on probation are confirmed in rank:—H. L. M. Glover, P. H. Heygate, W. F. Hilchie, R. A. McDonald, H. E. Slowey; September 12. A. H. Button; September 22. The following Pilot Officers are promoted to rank of Flying Officer:—B. A. Fraser; June 14. N. Daunt, D. M. T. Macdonald, R. I. G. MacDougall, B. J. McGinn, P. H. Maxwell, A. W. Vincent; September 14. Wing Commander V. Gaskell-Blackburn, D.S.C., A.F.C., is restored to full pay from half-pay; October 9. Flight Lieut. A. W. B. McDonald continues on half-pay scale "B," during the period September 16 to 27, inclusive (substituted for *Gazette*, September 15); Lt.-Cdr. I. R. Grant, R.N., Flight Lieut., R.A.F., ceases to be attached to R.A.F. on return to Naval duty; September 30.

The follg. are placed on retired list:—Squadron Leader A. McR. Moffatt; October 13. Flight Lt. F. E. Bishop, M.B.E.; October 9. Flight Lt. J. C. Andrews, M.B.E.; October 10. The follg. Pilot Officers on probation relinquish their short-service commns. on account of ill-health: October 14:—S. G. Graham, R. L. Hoyle.

## ROYAL AIR FORCE INTELLIGENCE

**Appointments.**—The following appointments in the Royal Air Force are notified:—

### General Duties Branch

*Air Vice Marshal* F. R. Scarlett, C.B., D.S.O., to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 7.9.31.

*Wing Commanders:* R. M. Drummond, D.S.O., O.B.E., M.C. to School of Army Co-operation, Old Sarum, for Army Co-operation Course, 6.10.31. L. L. MacLean, to No. 58 Sqn., Worthy Down, pending taking command, 5.10.31.

*Squadron Leaders:* R. T. B. Houghton, A.F.C., to School of Army Co-operation, Old Sarum, 28.9.31. R. B. Munday, D.S.C., A.F.C., to R.A.F. Depot, Uxbridge, 16.9.31. J. Whitford, to No. 24 Sqn., Northolt, 3.10.31. N. P. Dixon, A.F.C., to R.A.F. Base, Gosport, 29.9.31. R. V. Goddard, to R.A.F. Depot, Uxbridge, 17.9.31. G. O. Venn, to Anti-Aircraft Co-operation Flight, Biggin Hill, 6.10.31. H. S. P. Walmsley, M.C., D.F.C., to Air Ministry (C.A.S.), 4.10.31. H. M. Massey, M.C., to R.A.F. Base, Calshot, 4.10.31.

*Flight Lieutenants:* H. J. Paine, to R.A.F. Reception Depot, West Drayton, 24.9.31. H. J. Collins, to H.Q., Air Defence of Gt. Britain, Uxbridge, 1.10.31. J. H. C. Wake, to No. 70 Sqn., Hinaidi, Iraq, 13.9.31. A. W. B. McDonald, to Cambridge University Air Sqn., 28.9.31. T. M. Williams, M.C., D.F.C., to Cambridge University Air Sqn., 5.10.31. A. T. K. Shipwright, D.F.C., to No. 3 Sqn., Upavon, 2.10.31. E. S. Burns, to H.Q., Coastal Area, 5.10.31.

*Flying Officers:* P. K. Robertson, to R.A.F. Depot, Uxbridge, 21.9.31. L. T. Carruthers, to No. 24 Sqn., Northolt, 6.10.31. G. C. Holland, to R.A.F. Depot, Uxbridge, 2.10.31. E. J. Finnegan, to No. 7 Sqn., Worthy Down, 1.10.31. R. F. Fletcher, to No. 24 Sqn., Northolt, 2.10.31. A. C. Bailey, to No. 24 Sqn., Northolt, 5.10.31. P. Heath, to No. 24 Sqn., Northolt, 2.10.31. P. D. Cracroft, to Central Flying School, Wittering,

## Chaplains Branch

The Rev. J. H. Ogilvie, M.A., relinquishes his short-service commn. on completion of service: October 10.

## ROYAL AIR FORCE RESERVE

### General Duties Branch

The follg. Flight Lts. are transferred from Class A to Class C:—J. B. Wilson; October 3. H. G. Loch; October 10. Flying Officer G. R. de Havilland is transferred from Class AA (ii.) to Class C; October 14. Flight Lt. R. L. Stephenson-Peach, M.B.E., is transferred from Class B to Class C; November 1, 1930. Flying Officer E. W. Seymour-Hosley relinquishes his commn. on appointment to a commission in South African Air Force General Reserve of Officers; May 21. Flying Officer J. F. Legard relinquishes his commn. on appointment to a permanent commn. in the Regular Army; August 29.

## AUXILIARY AIR FORCE

### General Duties Branch

No. 604 (COUNTY OF MIDDLESEX) (BOMBER) SQUADRON.—R. A. Budd to be Pilot Officer; September 22.

28.9.31. M. Q. Candler, to R.A.F. Base, Calshot, 4.10.31. A. P. Glenny, to R.A.F. Base, Calshot, 4.10.31. F. J. St. G. Braithwaite, to H.Q., Inland Area, Stanmore, 5.10.31.

*Pilot Officers:* E. B. Waddy, to No. 2 Sqn., Manston, 26.9.31. P. J. W. Hawkins, to No. 3 Sqn., Upavon, 28.9.31. F. S. Gardner, to No. 17 Sqn., Upavon, 28.9.31. J. N. Dufort, to No. 25 Sqn., Hawkinge, 28.9.31. G. Burdick, to No. 29 Sqn., North Weald, 28.9.31. J. N. Jefferson, J. G. G. Moore, W. Richards, A. M. Rodgers and A. H. Seymour-Lucas, all to No. 5 Flying Training School, Sealond, on appointment to permanent commns., with effect from 26.9.31. R. C. Reynell, to No. 5 Flying Training School, Sealond, on appointment to a short service commn., with effect from 28.9.31. A. G. Cleland, to No. 47 Sqn., Khartoum, 30.9.31. F. C. Daubney, to No. 4 Sqn., S. Farnborough, on appointment to a permanent commn., on probation, 1.9.31. W. E. Oulton, A. D. Messenger, W. P. Welch, D. I. P. MacNair, and N. A. R. Halliday, all to R.A.F. Base, Calshot, 4.10.31. R. H. Maw, to No. 9 Sqn., Boscombe Down, on appointment to a short service commn., 1.10.31.

### Accountant Branch

*Wing Commander* J. L. Robertson, to Station H.Q., Hinaidi, Iraq, 26.9.31. *Flight-Lieutenants:* O. K. Griffin, to H.Q., Iraq Command, Hinaidi, 26.9.31. J. Freeman-Fowler, to H.Q., R.A.F., Middle East, Cairo, 26.9.31. S. C. Wyatt, to H.Q., R.A.F., Middle East, Cairo, 26.9.31.

### Chaplains Branch

Rev. C. P. N. Rowband, to R.A.F. Depot, Aboukir, Egypt, 26.9.31. Revd. A. R. A. Watson, M.A., to H.Q., R.A.F., Mediterranean, Malta, 30.9.31.

## NAVAL APPOINTMENT.

The following appointment has been made by the Admiralty:—**LIEUT.-COMM.** (Flight Lieut., R.A.F.) A. P. Colthurst, to *Glorious* (Oct. 20).



## AN EXIDE LUNCH

ON October 15, at the Clarendon Restaurant, the Exide Company held their usual Press luncheon, which always precedes the opening of the Motor Show at Olympia. With the furnishing of aircraft now being of increasing interest to upholsterers and other firms who also deal in motor-car work, this Exide luncheon is becoming as much a meeting place for those with aviation connections as it is for purely motor-car people, while Exide batteries themselves—to say nothing of Drydex dry batteries—are already widely used in aircraft. The luncheon, with Sir Malcolm Campbell as the guest of honour, was exceptionally well attended.

Mr. D. P. Dunne, Joint Managing Director of the Company, was in the chair, and we regret very much indeed that space does not allow us to quote his speech in full, for it was just such a speech as is needed in a time like the present, when far too many people are apt to sit down and moan about times being hard instead of getting up and doing things. He stressed the point that what was wanted was someone who had the courage to set the ball of enthusiasm rolling and who, by a display of activity, would infuse similar activity in others. Mr. Dunne instanced the present lunch, which, he said, was held in spite of the pessimistic outlook of many people who were cancelling similar functions, and so certain was his company, he said, that the only sensible way of facing the economic situation together with the general depression existing, was to be courageous, that they had therefore reduced the prices of their motor-car and radio batteries by approximately 20 per cent. It was, he hoped, a lead which others would follow.

Sir Malcolm Campbell likewise made an excellent speech, in which he discussed at some length the old days, and finally compared his "Bluebird" with some of the motor-cars he used to drive.

Mr. Thornton Rutter replied with a gracious speech, also reminiscing about the old days, and concluding by thanking the Exide Company for holding this luncheon and encouraging everybody thereby.

## Serck Radiators

MANY pilots and private owners no doubt are already aware of the wonderful car radiator service of Serck Radiators, Ltd., of Greet, Birmingham, throughout the country. They have still further extended this by acquiring the Central Sheet Metal Co., St. Michael Road, Northampton, and other towns are under contemplation.

## The Reid and Sigrist Turn Indicator

IN our issue for September 18 last we published an illustrated description of the Reid & Sigrist Turn Indicator. We have received from the manufacturers an interesting and excellently produced booklet dealing very fully with this important instrument. No doubt any of our readers who may be interested in the problem of blind flying will be able to obtain a copy of this booklet on applying to Reid & Sigrist, Canbury Park Road, Kingston-on-Thames.

## A Correction

OUR issue of the 9th instant carried an advertisement to the effect that Sqd. Ldr. Stainforth's new world speed record had been achieved on Pratt's Ethyl petrol. We are now asked by the proprietors of Pratt's to state that the spirit used was Pratt's special Ethyl petrol, the word "special," which appeared in the national Press, having been omitted from our announcement by an oversight.

## IMPORTS AND EXPORTS

AEROPLANES, airships, balloons and parts thereof (not shown separately before 1910).

For 1910 and 1911 figures see FLIGHT for January 25, 1912.

For 1912 and 1913, see FLIGHT for January 17, 1914.

For 1914, see FLIGHT for January 15, 1915, and so on yearly, the figures for 1930 being given in FLIGHT, January 16, 1931.

|           | Imports. |        | Exports.  |           | Re-exports. |        |
|-----------|----------|--------|-----------|-----------|-------------|--------|
|           | 1930.    | 1931.  | 1930.     | 1931.     | 1930.       | 1931.  |
|           | £        | £      | £         | £         | £           | £      |
| Jan. ...  | 2,987    | 7,965  | 147,935   | 142,596   | —           | 1,074  |
| Feb. ...  | 2,460    | 3,303  | 226,049   | 110,587   | 1,000       | 1,293  |
| Mar. ...  | 744      | 5,615  | 156,098   | 83,088    | 802         | 3,441  |
| April ... | 2,959    | 2,216  | 213,390   | 213,401   | 79          | 530    |
| May ...   | 11,706   | 1,964  | 158,460   | 275,382   | 2,550       | 198    |
| June ...  | 15,029   | 6,780  | 252,443   | 78,298    | 1,060       | 361    |
| July ...  | 14,216   | 1,790  | 170,594   | 177,006   | 938         | 131    |
| Aug. ...  | 5,382    | 3,556  | 146,564   | 153,834   | 6,912       | 2,316  |
| Sept. ... | 2,757    | 1,088  | 109,363   | 218,987   | 1,730       | 1,074  |
|           | 58,240   | 34,277 | 1,580,896 | 1,453,179 | 15,071      | 10,418 |

## PUBLICATIONS RECEIVED

*Principles and Problems of Aircraft Engines.* By M. M. Farleigh. London: Chapman & Hall, Ltd. Price 15s. net.

*Report on the Aerodynamics Department for the Year 1930.* From the Report of the National Physical Laboratory for the Year 1930. London: H.M. Stationery Office, W.C.2. Price 2s. 6d. net.

*Aeronautical Research Committee Reports and Memoranda: No. 1379 (Ae.504—T.3010). Biplane Fins on a Model of R.101.* By R. Jones and A. H. Bell. October, 1930. Price 9d. net. No. 1391 (Ae.512—S.73). *Measurements of Lift and Drag of Southampton Seaplane.* By A. S. Crouch. April, 1931. London: H.M. Stationery Office, W.C.2.

*This Motoring.* By Stenson Cooke. London: Cassell & Co., Ltd. Price 3s. 6d. net.

*Report on Trade and Economic Conditions in Bulgaria during 1930 and First Six Months of 1931.* Department of Overseas Trade, 35, Old Queen Street, London, S.W.1.

*The Motor Manual.* 28th Edition. London: Temple Press, Ltd. Price 2s. 6d. net.

*L'Année Aéronautique, 1930—1931.* By L. Hirschauer and Ch. Dollfus. Dunod, 92, Rue Bonaparte, Paris.

*Gliding and Soaring.* By Percival White and Mat White. London and New York: McGraw-Hill Publishing Co., Ltd. Price 12s. 6d. net.

*The Fund Journal.* No. 7. August, 1931. The Motor and Cycle Trades Benevolent Fund, 42, Bedford Row, London, W.C.1.

*K.L.M. Air Guide, Amsterdam-Batavia Service.* K.L.M. Royal Dutch Air Lines, 66-68, Haymarket, London, S.W.1.

*Economic Conditions in Italy.* Report by E. H. Mulock. Department of Overseas Trade, June, 1931. London: H.M. Stationery Office, W.C.2. Price 4s. net.

*Drawing Office Progress.* The Drawing Office Material Manufacturers' and Dealers' Association, 168, Windsor House, Victoria Street, London, S.W.1.

*Falcons of France.* Compiled by C. Nordhoff and J. N. Hall. London: John Hamilton, Ltd. Price 7s. 6d. net.

*Mitteleuropa.* By Meyers Luftreisebücher. Bibliographisches Institut Ag., Leipzig. Price 15 marks.

## AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motors. (The numbers in brackets are those under which the Specification will be printed and abridged, etc.).

## APPLIED FOR IN 1930

Published October 22, 1931

- 15,810. P. CLERGET. I.c. engines. (357,519.)  
 19,316. AIRCRAFT IMPROVEMENT CORPORATION. Aircraft controls. (357,585.)  
 19,320. H. R. RICARDO. I.c. engines of compression-ignition type. (357,586.)  
 22,376. MACTAGGART, SCOTT & Co., LTD., and C. C. MITCHELL. Aircraft catapults or launching apparatus. (357,694.)  
 25,748. B. N. R. LAMONT. Couplings for joining aeroplane stays, etc. (357,741.)  
 26,333. ECLIPSE AVIATION CORPN. Engine-starting mechanism. (357,746.)  
 34,602. W. C. WARD. Airships. (357,848.)

## APPLIED FOR IN 1931

Published October 22, 1931

928. B. M. ROCHAT. Silencers for internal-combustion engines of aeroplanes. (357,906.)  
 9,393. H. HEIN. Landing-devices for aircraft. (357,937.)

## FLIGHT, The Aircraft Engineer and Airships.

36, GREAT QUEEN STREET, KINGSWAY, W.C.2.

Telephone (2 lines): Holborn, 3211.

Holborn, 1884.

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